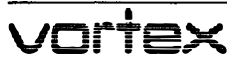


***Benutzerhandbuch***  
***User's Manual***  
***Manuel d'Utilisateur***

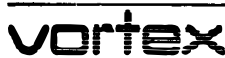
***vortex Golden Gate***  
***25 MHz 386SX und 486SLC***  
***AT-Emulator Amiga 2000/3000***



# ***User's Manual*** ***vortex Golden Gate***

***25 MHz 386SX and 486SLC***  
***AT-Emulator for Amiga 2000/3000***

**© vortex Computersysteme GmbH**  
***Edition 2 - September 1992 - RM***  
***All changes reserved.***



## Table of Contents

1. Introduction	3
1.1 Copyrights	8
1.2 Notes	9
1.3 Before the Installation	10
1.3.1 Unpacking the Golden Gate Emulator	10
1.3.2 Delivery	10
1.3.3 Contents of the Golden Gate Disks	11
1.3.4 Before the First Operation	13
1.3.5 Checking the vortex Production Seal	13
1.3.6 Filling in and Returning the vortex Registration Card	14
2. Introducing Golden Gate	15
2.1 All you need is RAM	15
2.2 Floppy Disk Drives	18
2.3 Hard Disk Drives	20
2.4 Video	22
2.5 Interfaces COM1, COM2, LPT1	22
2.6 Mouse	23
2.7 Keyboard	23
2.8 Multitasking	23
2.9 PC/AT (ISA) Slot Support	24
2.10 Compatibility	24
3. Hardware Installation	26
3.1 Important Notes for the Installation	26
3.2 Necessary Tools	27
3.3 Installation Into an Amiga 2000	27
3.4 Installation Into an Amiga 3000	37
3.5 Upgrading the Golden Gate Emulator with RAM	43
3.5.1 Using a Part of the Golden Gate PC/AT RAM Expansion as an Amiga RAM Expansion	47
3.6 Upgrading with a 80C387SX-25MHz Coprocessor	48
3.7 Upgrading with a 82077AA Floppy Disk Controller	51
3.8 Connecting an IDE Hard Disk Drive	56

<b>4. The First Steps with Golden Gate</b>	<b>59</b>
4.1 Which MS-DOS is required ?	59
4.2 The First Operation of Golden Gate	59
<b>5. The Golden Gate Setup-Program</b>	<b>62</b>
<b>6. The Operation of Hard Disk Drives</b>	<b>80</b>
6.1 Using the Amiga Hard Disk for Golden Gate	81
6.2 Using the IDE or PC/AT Hard Disk for Golden Gate	85
<b>7. The Golden Gate Emulation Software</b>	<b>86</b>
7.1 Using Parts of the Golden Gate RAM as an Amiga RAM Expansion - the Golden Gate Program <i>moremem</i>	91
7.2 Supported Floppy Disk Drives and their Formats	92
7.3 The Amiga Mouse as a serial Microsoft Mouse	94
7.4 The Keyboard Emulation	95
7.5 The Golden Gate Video Emulations	97
7.5.1 Switching the Video Emulation under MS-DOS	98
7.5.2 The Programs VHIGH, VLOW, SSCR, and HSCR	100
7.6 The Operation of a PC/AT (ISA) EGA/VGA graphics card	101
7.7 The Real Time Clock	101
7.8 Golden Gate Server Operation	102
7.9 Golden Gate Error Messages	105
<b>8. Miscellaneous</b>	<b>106</b>
8.1 Memory Expansions in the Amiga	106
8.2 The Operation of Microsoft Windows 3	106
8.3 The Installation of a MS-DOS RAM Disk	109
8.4 Golden Gate and Expanded Memory	109
8.5 File-Transfer from MS-DOS to Amiga-DOS and vice versa	111
8.6 Using Accelerator Cards	112
8.7 Test Program CHECKIT 2.0	112
<b>9. Connector Assignment</b>	<b>113</b>

# 1. Introduction



## **vortex Golden Gate the 25MHz 80386SX or 80486SLC PC/AT Emulator with PC/AT (ISA) Slot support for the Amiga 2000 and the Amiga 3000**

Golden Gate is the powerful PC/AT emulator for the Commodore computer systems Amiga 2000 and Amiga 3000. It is available in two different versions. **Golden Gate** with a 25 MHz 80386SX CPU and **Golden Gate 486SLC** with a 25 MHz 80486SLC CPU.

Golden Gate converts your Amiga into a versatile and most efficient multiprocessor and multioperating system offering a wide range of facilities and extensive access to professional MS-DOS software.

**Golden Gate** is based on a CMOS 80386SX CPU with 25 MHz clock speed. **Golden Gate 486SLC** is based on the high performance 486SLC CPU, also with 25 MHz clock speed. This CPU is compatible with the 486SX command set. With its 32 bit internal and 16 bit external data bus and with 1 KB Cache on chip it is up to 2.4 times faster than a 386SX processor with the same clock frequency.

As a bridge-slot expansion Golden Gate closes the gap between the Amiga's expansion bus (Zorro bus) and the PC/AT bus (ISA) expansion bus system of the Amiga. Thus it becomes possible to use the most different PC/AT expansion cards (e.g. EGA/VGA graphics cards, LAN cards) under MS-DOS.

In a standard Amiga with 1MB of total memory (as e.g. an Amiga 2000 in the configuration upon delivery) Golden Gate provides full 640KB of base memory. If more memory should be required, you can either use more Amiga RAM (on the motherboard or in a Zorro slot) or upgrade the PC/AT memory expansion on the Golden Gate board or do both. Because of the flexible design of the Golden Gate emulator, up to 4MB of the Golden Gate onboard RAM can be used as an autoconfiguring Amiga RAM expansion.

Amiga-DOS hard disk partitions and/or a large Amiga-DOS file on the Amiga hard disk can directly be assigned to MS-DOS partitions. In total, up to 24 MS-DOS partitions can be installed, MS-DOS can be booted directly from one of these partitions.

Additionally, Golden Gate includes its own IDE hard disk interface which enables you to use a high performance IDE hard disk drive under MS-DOS and also under AmigaDOS.

Two of the four possible Amiga floppy disk drives (DF0:, ..., DF3:) can be accessed as the MS-DOS drives A and B in the MS-DOS standard formats 360KB and 720KB. That is to say that disks with these formats can be read, written and formatted under MS-DOS in the normal Amiga floppy disk drives. With the help of the optional Golden Gate PC/AT floppy disk controller, PC/AT 3,5" and 5,25" floppy disk drives with 360KB; 720KB; 1,2MB; 1,44MB; and even 2,88MB formatted capacity can be used under MS-DOS as well as under AmigaDOS.

Already with a standard Amiga monitor (1084) several efficient video emulations are available: CGA (16 colours), Hercules, EGA and VGA monochrome graphics. If a full VGA video output in colour should be required, a standard PC/AT EGA/VGA graphics card can be plugged into one of the PC/AT slots of the Amiga and be connected with a suitable monitor. The video display is as fast and brilliant as with a "real" 386SX/486SLC PC/AT.

For an acceleration of high performance software as e.g. Excel or AutoCad, Golden Gate can be upgraded with an arithmetic coprocessor.

Golden Gate is accelerated by accelerator cards which are equipped with a 68020/030/040 CPU.

While Golden Gate is in operation the Amiga mouse is available as a serial Microsoft Mouse and the Amiga keyboard is available as a PC keyboard. The serial and parallel interfaces of the Amiga are emulated as COM1 or respectively COM2 and LPT1.

Windows 3, the world's most popular graphics user interface for PC/AT computers, can be operated with Golden Gate just as with a real 386SX/486SLC PC/AT in the so-called Protected and Enhanced Mode.

Last but not least, Golden Gate runs as a process within the multitasking environment of the Amiga, i.e. you can work simultaneously as well with the Amiga as with the PC/AT (Golden Gate) at any time.



Golden Gate has successfully been tested with Kickstart 1.3 and 2.0 .

(Note: If we talk about the *Amiga* or *Amiga Computer* in this manual, we mean both the Amiga 2000 and the Amiga 3000.

### Summary of the Key Features:

- ☐ PC/AT emulator with AT compatible BIOS.
- ☐ **Golden Gate** with CMOS 80386SX 25MHz CPU with full 25 MHz.
- ☐ **Golden Gate 486SLC** with CMOS 80486SLC 25 MHz CPU with full 25 MHz.
- ☐ Socket for an 80C387SX 25MHz arithmetic coprocessor.
- ☐ Amiga PC/AT (ISA) slot support. PC/AT expansion cards as e.g. EGA/VGA graphics cards or LAN cards can be used.
- ☐ With a standard Amiga with 1MB of total RAM full 640KB of MS-DOS base memory are available. If more memory should be required, please read the following two points !
- ☐ Amiga RAM expansions and hard disks (i.e. Zorro slot expansions) can be used by Golden Gate: as base, extended and expanded memory or respectively as MS-DOS hard disk partitions. Up to 24 MS-DOS partitions can be installed. The possible partition size only depends on the MS-DOS version used and the existing capacity of the drives. MS-DOS can be booted directly from a MS-DOS partition.
- ☐ Golden Gate has an own PC/AT RAM expansion which can be upgraded with standard 256KB, 1MB and 4MB SIMM memory modules to up to 16MB (512KB are already installed upon delivery). Up to 4MB of this RAM expansion can be used as an autoconfiguring Amiga RAM expansion.
- ☐ Golden Gate 486SLC has already 2 MB RAM factory installed. With standard 1MB or 4MB SIMM memory modules up to 16MB can be configured.
- ☐ Golden Gate has an IDE hard disk interface for a PC/AT IDE hard disk drive to be used under MS-DOS and under AmigaDOS.



- ☐ Full Integration of the Amiga 3,5" and 5,25" floppy disk drives as 720KB or 360KB MS-DOS floppy disk drives.
- ☐ Optional floppy disk controller. MS-DOS 3,5" and/or 5,25" floppy disk drives with formatted capacities of 360KB; 720KB; 1,2MB; 1,44MB; and 2,88MB can be used under MS-DOS as well as under AmigaDOS. Internally 2 floppy drives and externally 1 floppy drive can be connected with Golden Gate.
- ☐ Golden Gate runs unrestrictedly in the Protected and Enhanced mode, so that programs like Windows 3.0/3.1 can be operated.
- ☐ Golden Gate emulates the following video adapters (in connection with a 1084 monitor):  
EGA and VGA monochrome graphics, CGA with full 16 colours, Hercules, Olivetti and Toshiba 3100.  
Golden Gate supports flicker fixer cards.
- ☐ Multitasking Operation. Golden Gate runs as a process within the multitasking environment of the Amiga. It is at any time possible to switch between the two operating systems (Amiga DOS and MS-DOS). Both operating systems run simultaneously.
- ☐ The Amiga mouse can be used as a serial Microsoft mouse under MS-DOS (at COM1 or COM2). The Amiga keyboard becomes a PC keyboard.
- ☐ The parallel interface of the Amiga can be addressed as LPT1 under MS-DOS.
- ☐ The serial interface of the Amiga can be used as COM1 or COM2 (depending on the installation of the mouse) under MS-DOS.
- ☐ Golden Gate has its own PC/AT speaker.
- ☐ Golden Gate has its own PC/AT real time clock (RTC).
- ☐ Golden Gate runs with all standard versions of MS-DOS from 3.2 up to 5.0 as well as the DR-DOS versions 5.0 & 6.0.
- ☐ Golden Gate has been tested with Kickstart 1.3 and 2.0.
- ☐ Golden Gate supports 68020/30/40 accelerator cards.





- ☐ Part of the delivery are this user's manual with its detailed informations for the installation of the hardware and software as well as two disks named *Goldmine I* and *Goldmine II*, including all the programs required for the operation of Golden Gate (except MS-DOS).
- ☐ vortex update service. Each customer having returned the completely filled-in *Registration Card* to us will be registered as a user of Golden Gate.

## **vortex Golden Gate - the Multi Talent**

### **Abbreviations and Conventions used in this manual:**

EGA	Enhanced Graphics Adapter - PC/AT video standard
<ENTER>	press ENTER or RETURN key
IDE	Integrated Drive Electronics (hard disk with an integrated controller)
ISA	Industry Standard; 16 Bit PC/AT bus
K	KiloBit
KB	KiloByte
M	MegaBit
MB	MegaByte
ns	nano-second; 1 thousand billionth part of a second
sec	second (1/60 of one minute)
SIMM	Single Inline Memory Module
PCB	Printed Circuit Board
PC/AT	Computer standard with a particular expansion bus system that is often described as ISA (Industry Standard)
VGA	Video Graphics Array - PC/AT video standard



## 1.1 Copyrights

This manual - its cover, its contents, and all illustrations - is protected under international copyright laws and agreements:

All rights concerning this manual are held by vortex Computersysteme GmbH. Duplication and passing on of this manual or parts hereof require the prior written consent of vortex Computersysteme GmbH.

All programs on the enclosed system disk(s) are protected by copyright:

© Copyright 1990, 1991, 1992 by vortex Computersysteme GmbH.

The duplication and/or passing on of these programs is forbidden. These programs may only be used on one single computer.

AT and IBM are registered trademarks of International Business Machines Corporation.

Microsoft, MS-DOS, and Windows are registered trademarks of Microsoft Corporation.

Golden Gate is a registered trademark of vortex Computersysteme GmbH.

Amiga, Commodore, CBM are registered trademarks of Commodore Electronics Limited.

Other trademarks of manufacturers mentioned in this manual are protected by copyright.

vortex Computersysteme GmbH  
Falterstraße 51-53  
D-7101 Flein bei Heilbronn



## 1.2 Notes

vortex guarantees that on leaving the premises of vortex the product is in a faultless condition and is manufactured according to the product specifications.

No further guarantee is given. In particular, vortex does not give any guarantee concerning the suitability of the product for certain applications or the loss and/or destruction of data having been stored in connection with this product.

If there should already exist other expansions in and/or at the Amiga Computer (RAM expansions, graphics cards, CPU cards, etc.) which do not come from vortex, the correct functioning of Golden Gate can only be guaranteed if this has explicitly been confirmed by vortex in a written form.

For the installation of the Golden Gate emulator the computer must be opened. This may cause the loss of any warranty claims for the computer.

**Golden Gate should be installed by a qualified person. The pre-condition for a safe installation of Golden Gate is an antistatic work place (earthed mat on the table with wrist bands connected to the earth). vortex does not take any responsibility for damages caused by Inexpert Installation.**

This manual has been compiled taking into account all the information available at the time it was completed. Mistakes and/or incomplete information are possible. We welcome any ideas and suggestions for improvement. Important informations not contained in this manual may be found in a file called **README.GBR** on the enclosed Golden Gate disk *Goldmine 1*. Apart from up-to-date information this file also contains a list of the programs and files on the vortex system disks. The contents of README.GBR are displayed on the screen automatically when starting the Amiga with the disk *Goldmine 1*.

**The contents of the file README.GBR must definitely be read before the system is used for the first time. Output on printer or screen is possible.**

***This manual explains the installation and operation of vortex Golden Gate.***

For information about the use of Amiga computers or the operating system(s) of Amiga computers please refer to the relevant system manuals.

Golden Gate requires an Amiga computer with at least 1MB of RAM and Kickstart 1.3.

## **1.3 Before the Installation**

### **1.3.1 Unpacking the Golden Gate Emulator**

Open the show carton and take out this manual and the Registration Card (last page of this manual). Then take out the Golden Gate PCB (leave it in its antistatic bag) and the Golden Gate disks.

**WARNING:** Never take the Golden Gate PCB out of the antistatic bag unless this is done on an antistatic work place and the person taking out Golden Gate is secured against electrostatic discharge through wrist bands. If these instructions are not observed, the user risks that the CMOS components on Golden Gate are damaged or destroyed.

Store the show carton safely in a dry place.

### **1.3.2 Delivery**

The following items are part of the delivery of Golden Gate:

1. vortex Golden Gate PCB and CPU adapter in a sealed antistatic bag.
2. two 3,5" vortex Golden Gate disks with emulation and installation software (no MS-DOS).  
Goldmine I (Amiga-DOS format 880KB)  
Goldmine II (MS-DOS format 720KB)
3. this user's manual and the Registration Card  
(=last page of the manual).

If one of these articles should be missing, please contact the dealer where you have purchased this product.

## 1.3.3 Contents of the Golden Gate Disks

You should not use the original Golden Gate disks for working with them. With the help of the Amiga program DISKCOPY or the Workbench Option DUPLICATE a copy of the disk **Goldmine I** for working purposes can be obtained. A copy of the Golden Gate **Goldmine II** disk (MS-DOS format 720KB) can be obtained with the MS-DOS program DISKCOPY.

Store the original Golden Gate system disks in a safe place.

The files that are part of the delivery of Golden Gate are listed below.

### The disk **Goldmine I** (AmigaDOS Format, 880KB).

The system software consists of the following files:

Drawer	File	Meaning
DEVS	goldenpylon gg.device	Overlay-file for Golden Gate Device driver for using PC/AT floppy and hard disk drives under AmigaDOS
LIBS	glib.library	System library for Golden Gate
GOLDENGATE	GG DIGGER GoldenToast GoldenNugget GoldenGate.cfg  LFONT  HFONT  goldenpylon glib.library  GREEK   SFONT, GFONT, LFONT, HFONT	Loading file for Cli/Shell actual emulator file Overlay-file for Golden Gate Overlay-file for Golden Gate this file contains all data for the configuration of Golden Gate 8x16 Low-Intensity Font for MDA-Text 8x16 High-Intensity Font for MDA-Text Overlay-file for Golden Gate System library for Golden Gate Drawer containing the following Greek screen Fonts :  If these fonts shall be used, they must be copied into the drawer GOLDENGATE.

All files listed below are only **relevant** with the Workbench:

DIGGER.info	Info-file for Workbench
HDInstall.info	Info-file for Workbench
HDIns	file for hard disk installation
HDInstall	file for hard disk installation
HDInstall1	file for hard disk installation
Setup.info	Info-file for Workbench
Setup	additional file for Setup
Readme.info	Info-file for Workbench
Readme	additional file
Readme1	additional file
Readme.ger	this file
Readme.gbr	this file in English
Server	additional file for server operation
Server.cfg	configuration data for server operation
Server.Info	Info-file for Workbench
SetupServer	additional file
SetupServer.info	Info-file for Workbench

## **The disk Goldmine II (MS-DOS Format, 720KB).**

This disk contains the following programs in the directory GTOOLS:

File	Meaning
VLOW.EXE	see user's manual paragraph 7.5.2
VHIGH.EXE	-- " --
SSCR.EXE	enables softscroll function in the text mode (Default)
HSCR.EXE	enables hardscroll function in the text mode With a softscroll the screen is really scrolled by the blitter, whereas with a hardscroll the scroll is done indirectly by the video-update
INVERS.EXE	swaps background- and foreground-colour in all 2-colour video modes
MDA.EXE	selects Hercules emulation
CGA.EXE	selects CGA emulation
V400.EXE	selects Olivetti and Toshiba T3100 emulation

EGA.EXE	selects EGA monochrome graphics emulation
VGA.EXE	selects VGA monochrome graphics emulation
P2A.EXE	PC TO AMIGA: copies a file from a MS-DOS partition into an AmigaDOS partition.
A2P.EXE	AMIGA TO PC: copies a file from an AmigaDOS partition into a MS-DOS partition.
HDT.SYS	hard disk driver (to be included in CONFIG.SYS) for controlling the partitions E, F, ..., Z.
PFORMAT.EXE	partition formatting program for E, F, ..., Z.
FMT288.EXE	formatting program for ED disks (2.88MB) (only needed if MS-DOS versions lower than 5.0 are used).
HDFORMAT.COM	low-level formatting program for IDE and PC/AT hard disks (e.g. WD1003). An IDE hard disk connected to Golden Gate's IDE interface must be low-level formatted with this program before it can be used.

### 1.3.4 Before the First Operation

In order to avoid damages caused by inexpert or wrong handling or treatment, this user's manual **must** be read carefully before the installation and the first operation.

### 1.3.5 Checking the vortex Production Seal

Before Golden Gate has left our works it was packed and sealed in an antistatic **bag**. This **gives** the customer the certainty that the product he has just purchased is absolutely new and has not been taken out of this bag by any other person and might not have been damaged by electrostatical discharge.

### **1.3.6 Filling In and Returning the vortex Registration Card**

The Registration Card is also part of the delivery of Golden Gate (last page of this manual, it can easily be taken out)

We recommend to completely fill-in this card, put the correct stamp on it and send it back to us as soon as possible (you will find the serial number on the soldering side of the Golden Gate PCB and also on the show carton). As soon as we receive the completely filled-in Registration Card the customer becomes a registered vortex user.



## 2. Introducing Golden Gate

---

When our engineers designed Golden Gate, it was an essential aim to achieve the best possible integration of the emulator into the existing Amiga system environment.

Golden Gate is able to use almost all components of the Amiga for its emulation and provide them under MS-DOS: Amiga RAM, Amiga floppy disk drives, Amiga hard disk drives, Amiga video controller and monitor, Amiga serial and parallel interfaces, Amiga mouse and keyboard.

Another aim we wanted to achieve was to provide Golden Gate itself with various options for expansions. Thus Golden Gate provides a PC/AT RAM expansion, that can be expanded to up to 16MB (512KB on Golden Gate/2 MB on Golden Gate 486SLC factory installed), 4MB of which can be used as an autoconfiguring Amiga RAM expansion. Further Golden Gate has an IDE hard disk interface for a fast MS-DOS IDE hard disk drive, an optional floppy controller for high density floppy disk drives and a socket for a 80C387SX 25MHz coprocessor.

For the emulation Golden Gate uses both the components of the Amiga as well as its own onboard expansions. The strategies by which Golden Gate can use these system resources will be further explained on the following pages.

### 2.1 All you need is RAM

Just as any real PC/AT computer Golden Gate, too, needs RAM to live on.

In difference to the memory organization of the Amiga with its continuous address space and Amiga-DOS, the PC/AT and MS-DOS can control 640KB *base memory* (also called conventional memory) and above this limit two further different types of memory, the *extended memory* and *expanded memory*. Golden Gate puts all three types of PC/AT memory at the user's disposal just like on a real PC/AT computer. The RAM required for this can be both in the Amiga (on the motherboard or on a Zorro slot RAM expansion) and on Golden Gate itself.

If we talk about **RAM** and **RAM expansions** one or the other of the following questions will arise:

*How can Golden Gate use the Amiga RAM ?*

Golden Gate can reserve parts of the Amiga RAM for itself and use them for both types of PC/AT memory: **base** and **extended** memory.

*How can Golden Gate address its own RAM ?*

.... very much faster.

The reason for this is that the 80386SX/80486SLC can address Golden Gate's own RAM without wait states and that this is controlled completely by the Golden Gate high performance RAM controller. Compared to that the Amiga RAM is relatively slow (for the 80386SX/80486SLC).

If Golden Gate is operated with its own faster RAM, a visible improvement in its performance can be observed.

Golden Gate's own RAM on delivery consists of 512KB and 4 SIMM sockets for 256KB, 1MB or even 4MB SIMM memory modules.

Golden Gate's 486SLC own RAM on delivery consists of 2MB and 2 SIMM sockets for 1MB or even 4MB SIMM memory modules.

*Which are the differences between Amiga RAM and Golden Gate's own RAM ?*

Apart from the better performance Golden Gate shows with its own RAM, Golden Gate does not make any further distinctions between its own RAM and Amiga RAM.

*How much RAM is required ?*

The more, the better ....

If a RAM upgrade should be planned, it is better to upgrade Golden Gate with RAM than the Amiga.

In order to operate Golden Gate, no more than an Amiga with 1MB of total RAM is required. Since there is no Amiga 2000 or Amiga 3000 equipped with less than 1MB of RAM no more than a standard Amiga is required (that is to say without any additional RAM).

With this configuration Golden Gate will provide full 640KB of base memory. If more RAM is required because a particular Amiga program needs more memory or more extended memory shall be provided for MS-DOS, there are two ways to upgrade the RAM of the complete system (Amiga & Golden Gate): either the Amiga is upgraded with more RAM (on the motherboard or with the help of an autoconfiguring Zorro slot RAM expansion), or Golden Gate is upgraded with SIMM memory modules.

*Which are the differences between base, extended and expanded memory ?*

Before the introduction of the 80286 microprocessor, all MS-DOS programs and the MS-DOS operating system itself had been restricted to 640KB of memory. These 640KB represented the complete amount of RAM at the user's disposal. Thus under MS-DOS programs, data and MS-DOS itself had to be small enough to occupy no more than 640KB.

More memory was needed. The only way to control more memory making sense consisted in developing new, more powerful microprocessors (286, 386, 486) and operating systems layed out for them. The crucial point was (and still is) to keep both compatible to their respective predecessors. This is one reason why we still have the 640KB limit today.

Extended memory is a special memory above 640KB and it is only available in computer systems equipped with at least a 80286 microprocessor. MS-DOS and MS-DOS programs require a special driver (e.g. HIMEM.SYS) in order to be able to address this memory. The advantages of an extended memory are a fast access and a continuous and coherent address space.

Almost all newly developed or newly written programs preferably use extended memory and not expanded memory (e.g. Windows 3, Lotus 1-2-3). Expanded memory has been introduced at a time when our PC's were equipped with a 8088 or 8086 microprocessor (... good old days) and solutions to get more memory were looked for. Expanded memory is mapped in a certain block size and an address window by a certain hardware and software.

It would be wrong to claim expanded memory was antiquated or old, but the trends in the development of new software unambiguously show that it is extended memory that is dominant (Windows 3 is probably the most popular development).

*Can the Amiga also use the RAM of Golden Gate ?*

Yes!

2MB or 4MB of Golden Gate's own RAM can be used as an autoconfiguring Amiga RAM expansion.

**As a rule of thumb** and also taking into consideration the costs and **flexibility** it is certainly much better to upgrade Golden Gate with RAM than **the Amiga** (on the motherboard or with a Zorro slot expansion).

**Of course**, it is clear that the amount of Golden Gate's RAM used by the **Amiga** is no longer available for MS-DOS.



*Can the Amiga and Golden Gate share the Amiga floppy disk drives ?*

Yes.

Since Golden Gate is embedded into the multitasking system of the Amiga as a process and Golden Gate disposes of a corresponding software, the Amiga and Golden Gate (i.e. the PC/AT) can share the Amiga floppy disk drives. To which "side" the Amiga floppy disk drives are assigned at the moment is decided by the active screen: if the Amiga screen is active, the Amiga floppy disk drives "belong" to the Amiga (by the way, this is true also for the keyboard and the mouse as detailed below). If you switch to the PC/AT screen (or the Golden Gate window - with external monitor operation with a PC/AT EGA/VGA graphics card) and thus activate it, the Amiga floppy disk drives can be used as MS-DOS drives with the above MS-DOS formats.

*Which floppy disk drives are required, if Golden Gate's own floppy disk controller shall be used and which MS-DOS disk formats are provided then ?*

Golden Gate can be upgraded with a floppy disk controller chip (a corresponding socket is provided on the Golden Gate PCB). This is the 82077AA floppy disk controller by Intel.

This floppy disk controller can control the most different floppy disk drives and provide them under MS-DOS as well as under AmigaDOS. For the connection of the floppy disk drives there are appropriate connectors: one directly on the Golden Gate PCB, and one at the back - that means accessible from outside, so that also an external floppy disk subsystem can be connected.

Golden Gate can control a maximum of 3 own floppy disk drives.

The following floppy disk drives can be connected:

Form factor	Formatted capacity
3,5"	720KB; 1,44MB; 2,88MB
5,25"	360KB; 720KB; 1,2MB

The corresponding disk formats are available under MS-DOS (provided that the correct disks are used).

## 2.3 Hard Disk Drives

Golden Gate provides two different methods for the operation of MS-DOS hard disk partitions or hard disk drives. Both methods can be used together or separately of each other.

**Method 1** Complete Amiga-DOS partitions can be used as MS-DOS partitions and/or a big Amiga-DOS file can be used which contains one or more MS-DOS partitions.

**Method 2** A separate IDE PC/AT hard disk drive can be connected with the Golden Gate IDE hard disk interface and be used for MS-DOS.

Independent of the fact whether MS-DOS partitions are provided according to method 1 or 2, the operating system can be booted directly from one of these MS-DOS partitions.

In the following, questions and their answers are compiled which can be of interest in connection with this topic.

### *Which Amiga hard disks are supported ?*

The driver software of the hard disk controller must be Commodore compatible.

### *How does Golden Gate use an already existing Amiga hard disk ?*

As has already been described as method 1, Golden Gate can use the Amiga hard disk in two different ways. An example shall explain this a little further.

Let's assume that there is a SCSI hard disk controller in an Amiga 2000 to which a Quantum 52MB hard disk and a Syquest 44MB removable hard disk drive are connected. With the installation program included in the delivery of the hard disk controller 3 Amiga-DOS partitions DH0:, DH1: and DH2: have been installed. DH0: and DH1: have a size of 26MB each and both are on the Quantum hard disk and DH2: has 44MB and occupies the complete cartridge of the Syquest drive.

The user of this Amiga 2000 has made his decision for the following assignment:

DH1: shall be completely available for MS-DOS as partition C.

A file of 10MB shall be used on DH2:, in which there are two MS-DOS partitions of 5MB, that is D and E. This file will be referred to as *Amiga File*. The user can carry out the corresponding installations in the *Golden Gate setup-program* (for details please look further below in this manual).

For the user this means that he continues to have his partition DH0: to full extent and still 34MB of DH2:. DH1: can only be used by MS-DOS and is available as partition C there. The MS-DOS partitions D and E are parts of a "big" Amiga-DOS file (*Amiga File*).

Note:

Since DH0: is the boot partition for the Amiga itself, DH0: should never be completely assigned to a MS-DOS partition, but only a part of it (*Amiga File*).

*Which hard disk drives can be connected with Golden Gate's own IDE hard disk interface ?*

IDE stands for *Integrated Drive Electronics* and classifies a certain category of hard disk drives (mostly only 3,5" and 2,5" form factor). The IDE hard disk interface can operate standard drives (e.g. Seagate, Quantum, Conner). It is important to use an AT IDE hard disk drive and not a XT drive (these are no longer popular but still are available).

*How does the size of the MS-DOS partition depend on the MS-DOS version used ?*

With MS-DOS versions smaller or equal to 3.3 the maximum size of a partition is limited to 32MB. Starting with MS-DOS 4.01 this limitation does no longer apply.

## 2.4 Video

Golden Gate provides the following video emulations on a normal Amiga monitor (e.g. 1084):

Type	Colours	Resolution
CGA	16	640*200 max.
Hercules	2	720*348
Toshiba 3100	2	640*400
Olivetti AT&T	2	640*400
EGA monochrome graphics	2	640*350
VGA monochrome graphics	2	640*480

By Golden Gate's supporting also the PC/AT slots of the Amiga, *real* EGA/VGA graphics cards can be used. Then not a certain graphics card is emulated but it really exists. The Increase in speed and quality of the video output is remarkable.

Golden Gate supports so-called flicker fixer cards and profits from 68020/30/40 accelerator cards (a faster screen play with emulated graphics cards).

## 2.5 Interfaces COM1, COM2, LPT1

Golden Gate provides the serial interface of the Amiga under MS-DOS either as COM1 or as COM2 (these are the two standard PC/AT serial interfaces). This means that e.g. a modem can be connected and used with the help of a corresponding PC/AT program (e.g. PROCOMM PCPLUS, Telix, Telemate). Restrictions to this arise in the maximum of attainable Baudrate; the emulated COM1/COM2 interface, under the best conditions, can be operated with a maximum of 9600 Baud.

The parallel interface is available as LPT1 (this is the standard PC/AT interface) under MS-DOS. This means e.g. that a printer (also a laser printer) can be connected and be used by MS-DOS to full extent. The small restriction arising here consists of the Amiga's parallel interface being only unidirectional, a fact that is completely negligible for operating a printer.



We would like to point out that these restrictions are not due to the emulator but that the Amiga, in this respect, simply is *not up to any more than that*.

If indeed *real* COM and LPT interfaces should be required, one can buy a (nowadays very inexpensive) PC/AT interface card and operate it in one of the PC/AT slots of the Amiga.

As a finishing remark it has to be pointed out that an Amiga interface having been assigned to Golden Gate is exclusively at Golden Gate's disposal as long as Golden Gate is in operation.

## 2.6 Mouse

The Amiga mouse can also be used under MS-DOS with the help of Golden Gate.

In designing the integration of the Amiga mouse it was clear that one had to keep to an existing standard. Thus, under MS-DOS the Amiga mouse is emulated as a serial Microsoft mouse. That is to say that all drivers existing for this mouse, probably the most popular one in the world (except Micky Mouse), run at once.

## 2.7 Keyboard

The Amiga keyboard is emulated under MS-DOS as a standard 84 key PC/AT keyboard with function keys, the numeric block and the special keys (e.g. PrintScreen).

## 2.8 Multitasking

Golden Gate and the Amiga work simultaneously. While the Amiga e.g. is copying data from one partition into another partition, the program Windows 3 can be operated under MS-DOS.

With the keys **Left Amiga-key and N** or **Left Amiga-key and M** the screen (only if no external monitor with EGA/VGA graphics card is used), the mouse, and the keyboard can be switched between the Amiga and Golden Gate.

## 2.9 PC/AT (ISA) Slot Support

As has already been mentioned Golden Gate supports the PC/AT slots of the Amiga. Instead of PC/AT sometimes the abbreviation ISA (Industry Standard) is used. ISA slots can be found in almost any PC/AT and have established themselves as a quasi standard for expansion cards in 80286, 80386 and 80486 computers.

World-wide there are thousands of manufacturers and suppliers for the most different expansion cards. The following expansion cards of different manufacturers have been tested with Golden Gate:

- VGA graphics cards
- EGA graphics cards
- XT/AT/IDE hard disk controllers
- SCSI host adapter
- LAN 8 and 16 Bit network cards
- Interface cards (serial, parallel)

EGA/VGA graphics cards ought to be of special interest. It is possible to state explicitly whether such a card exists in the Golden Gate *setup-program*. In general another monitor is required for a EGA/VGA graphics card (Multisync Monitor, VGA Monitor).

## 2.10 Compatibility

Purists in matters of compatibility will consider a device as 100% IBM PC/AT compatible if this device is an IBM PC/AT. This claim is definitely not a wrong one, but again not necessarily correct or relevant for the great amount of users. Compatible PC/AT computers have long since grown out of being a mere clone. They have established themselves and partly it was even them who made progress with that technology (e.g. the systems by COMPAQ).

Golden Gate has been designed to reach the highest grade of compatibility with a PC/AT.

Thus, the hardware of Golden Gate integrates a standard 386SX/486SLC chip set.

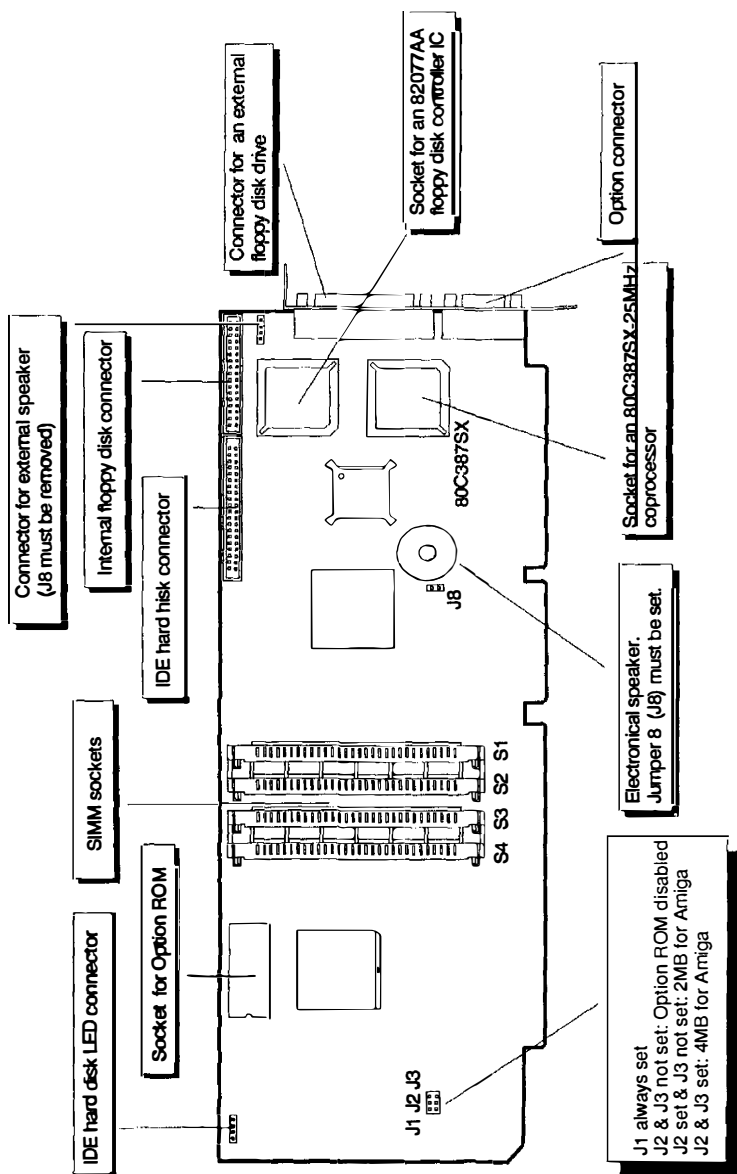


Illustration 2.a Components of the Golden Gate PCB

## **3. Hardware Installation**

---

The following paragraphs describe the Installation of the Golden Gate emulator Into the Amiga 2000 and the Amiga 3000.

Paragraph 3.3 describes the installation of Golden Gate into an Amiga 2000.  
Paragraph 3.4 describes the installation of Golden Gate into an Amiga 3000.

If Golden Gate shall be upgraded with additional RAM, a 80C387SX 25MHz coprocessor or a 82077AA floppy disk controller, this should be done before the actual installation of the Golden Gate emulator. The notes concerning Installations of upgrade items can be found in paragraphs 3.5, 3.6, and 3.7. The same applies if an IDE hard disk drive is to be connected to Golden Gate; the necessary notes on installation can be found in paragraph 3.8.

### **3.1 Important Notes for the Installation**

**The Installation should always be done on an antistatic work place with an earthed mat on the table and earthed wrist bands.**

**The person undertaking the Installation should be well experienced in handling CMOS components**

**Never take out the Golden Gate PCB of its antistatic bag or install it, if it is not on an antistatic work place and if the person taking it out is not protected from electrical discharge by wearing earthed wrist bands.**

**If these instructions are not observed the, user takes the risk of damaging Golden Gate.**

**Further notes on the Installation of expansion cards into the Amiga can be found in corresponding system manuals.**

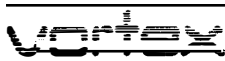
### **3.2 Necessary Tools**

1. Medium sized Phillips head screwdriver
2. Medium sized Flat-nosed screwdriver

### **3.3 Installation into an Amiga 2000**

1. Remove all cables from the Amiga 2000 (including the power supply) and place the computer in its normal position (view on the front side, floppy disk drive(s) on the right) on the antistatic work place. Now remove the 5 screws connecting the upper part of the Amiga case with the lower part with the Phillips head screwdriver and store them in a safe place (see illustration 3.3.a). One screw is at the back and two screws each are on the left and the right side in the lower part.
2. Carefully push forward the upper part of the case and lift it at the same time. Please make sure that the upper part of the case does not become entangled with cables in the interior of the Amiga and thus inadvertently pull them out (see illustration 3.3.b). Put the upper part of the case in a safe place.
3. Golden Gate can be plugged into one of the bridge-slots of the Amiga (see illustration 3.3.c). Before Golden Gate can be plugged in, the metal bracket of the corresponding bridge-slot which closes off the Amiga case at the back must be removed. Take out the corresponding screw with the Phillips head screwdriver and remove the metal bracket. Store the screw and the metal bracket in a safe place.
4. Now take Golden Gate out of the antistatic bag and plug it firmly into the selected bridge-slot. If Golden Gate has been plugged in correctly, the metal bracket fitted at the rear of Golden Gate over the two external connectors neatly closes off again the Amiga case to the back. Tightly connect the metal bracket with the Amiga case using the screw taken out in step 3. (See illustration 3.3.d).

5. Now the CPU adapter (it also is in the antistatic bag in which Golden Gate was) is installed. The CPU adapter must be plugged under the 68000 CPU of the Amiga 2000. In order to do so the 68000 CPU must be pulled out of its socket and be plugged into the CPU adapter. Then this module is plugged back into the 68000 socket of the Amiga 2000.  
In order to reach the 68000 CPU without any problems the metal supporting frame taking up the power supply and the floppy disk drives must be removed. For that 3 screws on the front of the metal supporting frame and 2 screws on its back must be removed with the Phillips head screwdriver (with some versions of the case the number of screws can vary). The various cables leading from the components fitted on the metal supporting frame to the Amiga 2000 motherboard may on no account be disconnected. When all screws are removed, the metal supporting frame can be lifted with both hands and be tilted to the left, so that it comes to lie on the Amiga case in the area of the slots in a head-down-position. Directly on the right of the processor slot (into which e.g. accelerator cards can be plugged) the 68000 CPU is located, a component of about a size of 7.5cm \* 2.5cm with 64 pins in its socket. The 68000 CPU can be extracted from its socket with the help of the Flat-nosed screwdriver (see illustration 3.3.e). Then the CPU is plugged firmly and level into the CPU adapter. This has to be done in a way to get the notch of the CPU adapter (a semicircle gap) to lie exactly under the notch of the 68000 CPU. Afterwards this module, consisting of 68000 CPU and CPU adapter, is plugged into the empty 68000 socket of the Amiga 2000 motherboard. In doing so take care that the notch of the 68000 CPU socket points in the same direction as the notches of the 68000 CPU and the CPU adapter and that all pins are neatly fitted in the 68000CPU socket (not bent inwards or outwards). (See illustrations 3.3.f and 3.3.g).
6. Before the Amiga is built together again a short check of the proper functioning should be carried out.  
Put the metal supporting frame back in its normal position and secure with a screw. Connect all cables and insert a copy of the disk *Goldmine I* into the floppy disk drive DF0:. Switch on the computer.



After the README file has been read the workbench appears. Afterwards switch to the Golden Gate drawer and twice click on the Golden Gate icon. After a short delay for loading the Golden Gate loading message appears with the demand to insert a MS-DOS system disk. **Golden Gate runs !** Now take out the disk *Goldmine I* and switch off the computer. Remove all cables again.

Now the Amiga can be put together again in the reverse sequence.

Please continue reading with chapter 4 of this manual.

In case the Amiga does not start again after having been switched on or if Golden Gate should not be loaded, switch off the Amiga immediately. The following questions give hints for possible sources for failure:

- (1) Are the power cords of the Amiga and the monitor re-connected properly ?
- (2) Have the keyboard and the mouse been connected properly ?
- (3) Has the monitor been connected properly ?
- (4) Has Golden Gate been plugged into one of the bridge-slots firmly and completely ?
- (5) Has the 68000 CPU been fitted in the CPU adapter with the correct orientation ?
- (6) Do all pins of the 68000 CPU fit properly in the CPU adapter (none bent inside or outside) ?

Two further possible causes for failure might be:

Perhaps there are problems with contacting in the bridge-slot connectors of the Amiga motherboard (e.g. corrosion). In this case Golden Gate can carefully be plugged in and out for several times (this might remove coatings). Of course, Golden Gate can be plugged into another bridge-slot (one which might have no contact problems).

Another expansion card could disturb the operation of Golden Gate. By removing one card after the other it can be found out which card it is. If necessary the problem can afterwards be solved by plugging the respective cards into other slots.



Illustration 3.3.a



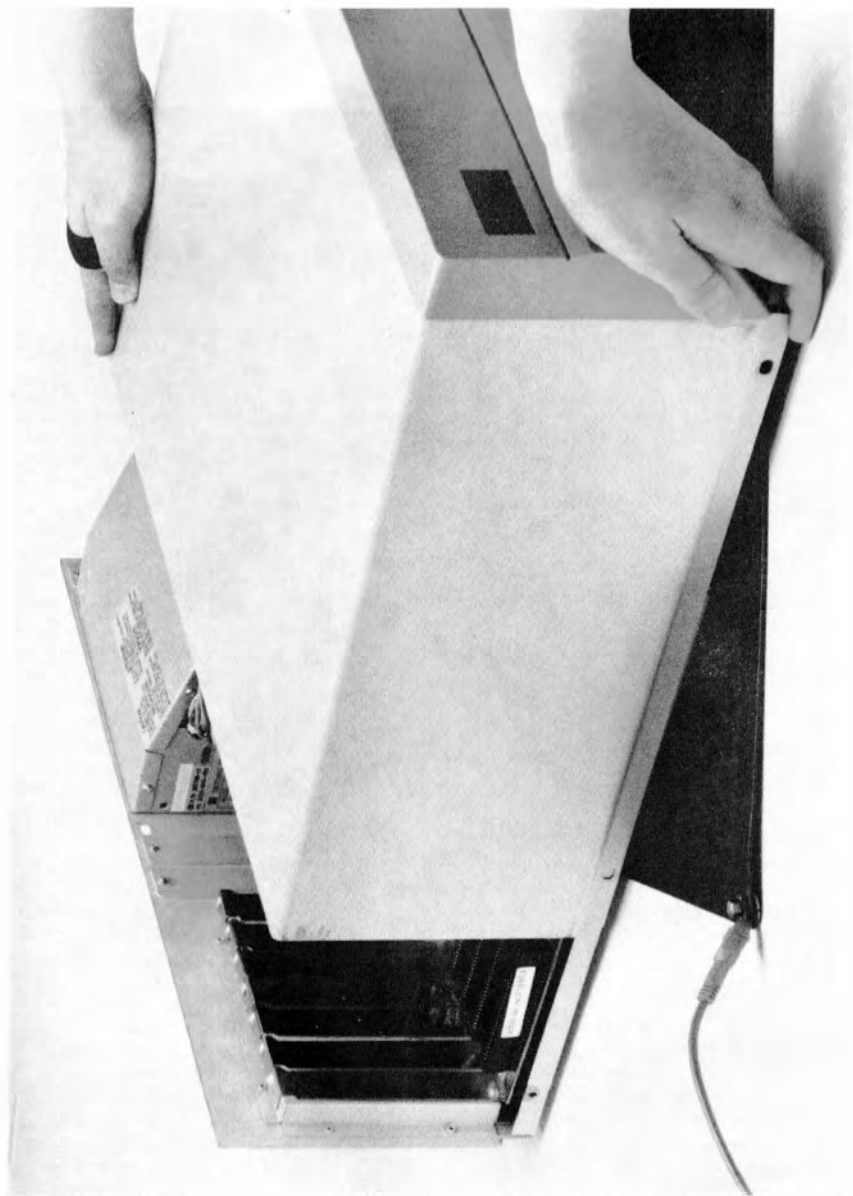


Illustration 3.3.b

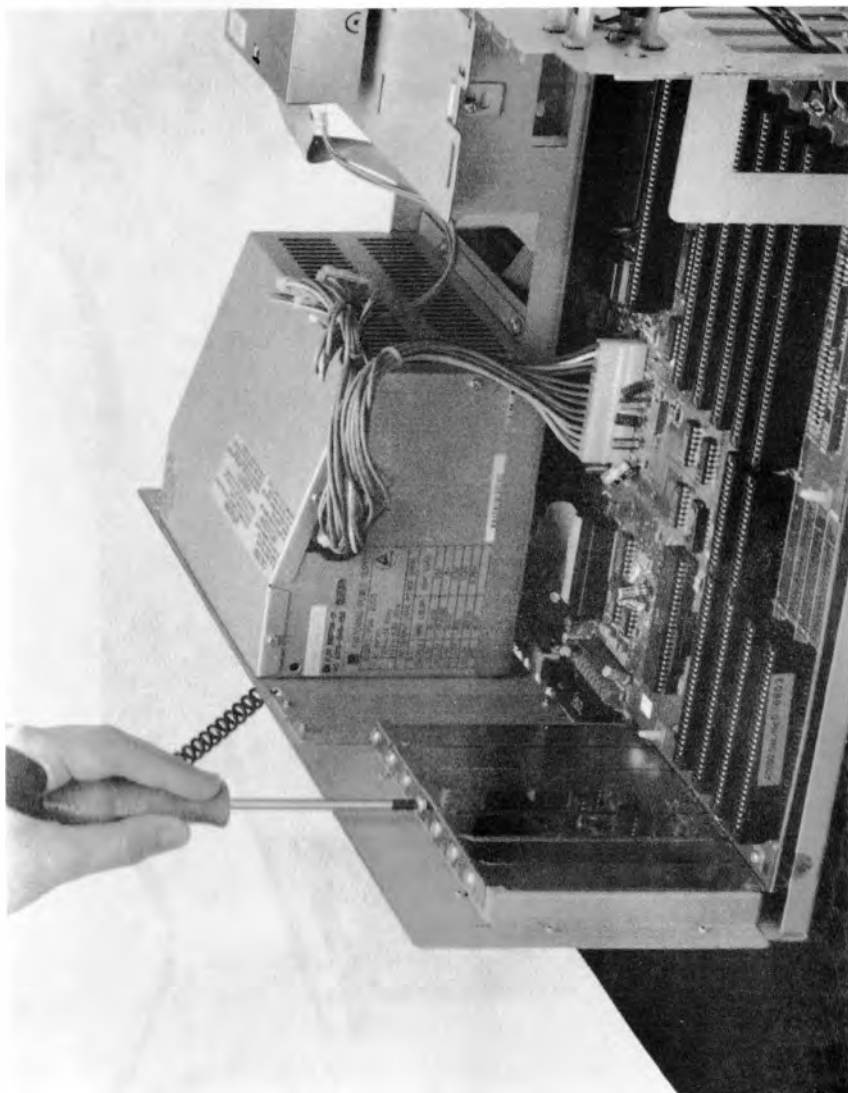


Illustration 3.3.c

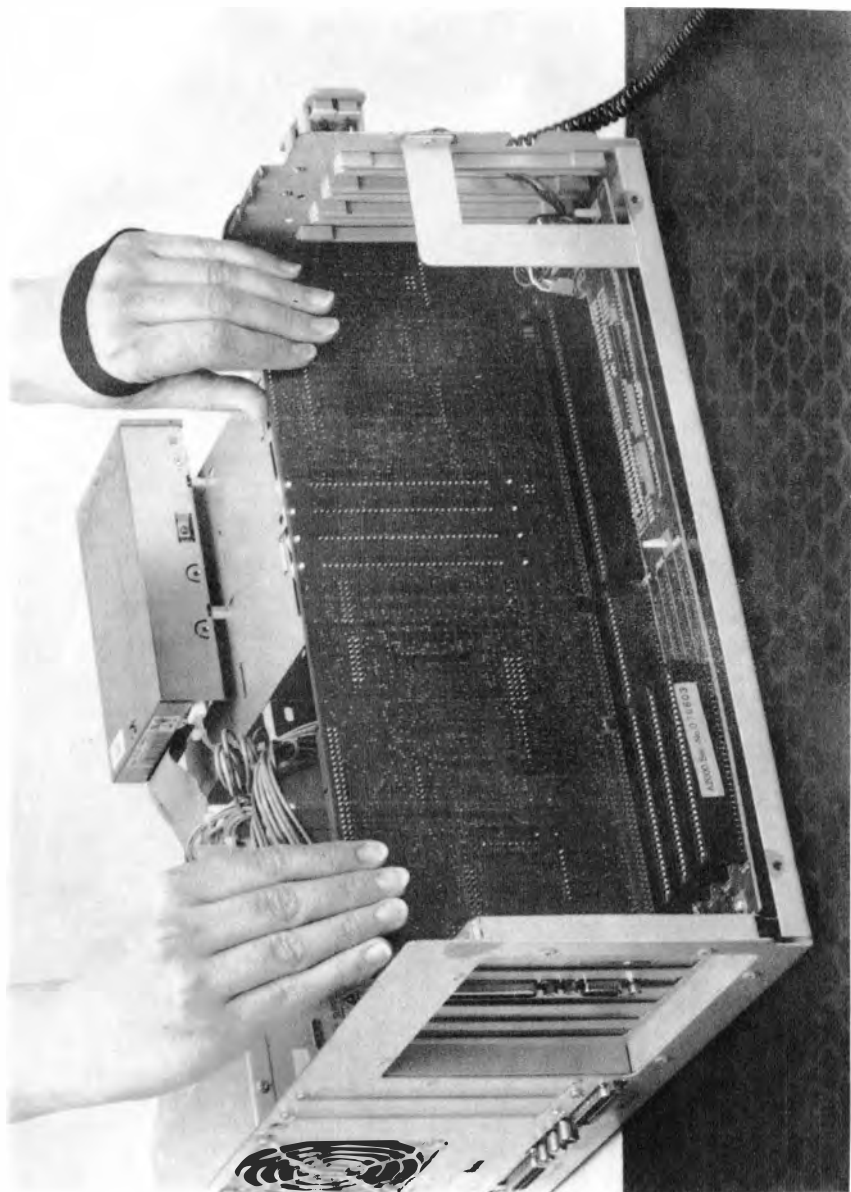


Illustration 3.3.d



Illustration 3.3.e

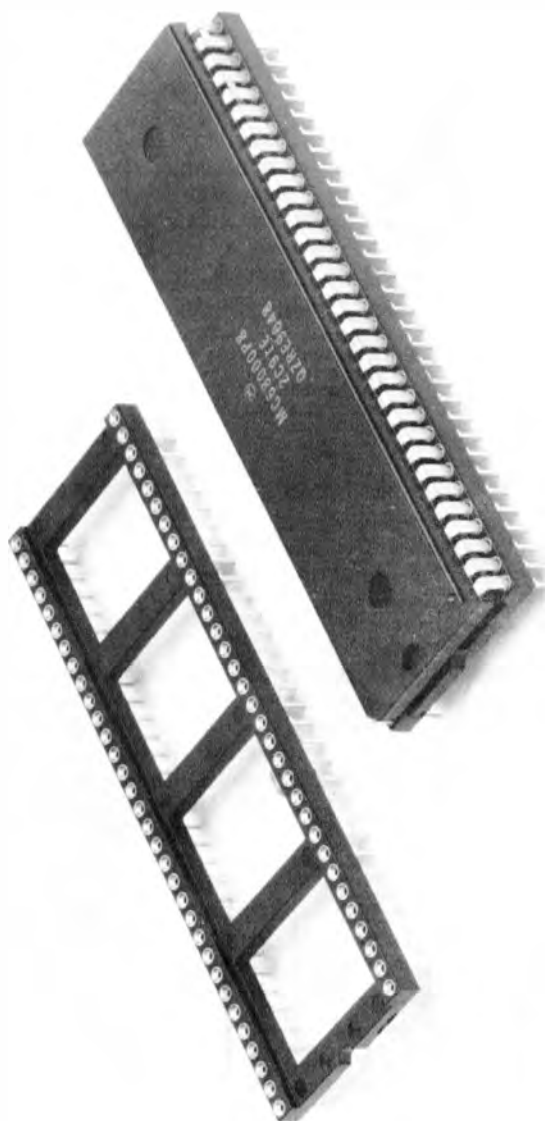


Illustration 3.3.f

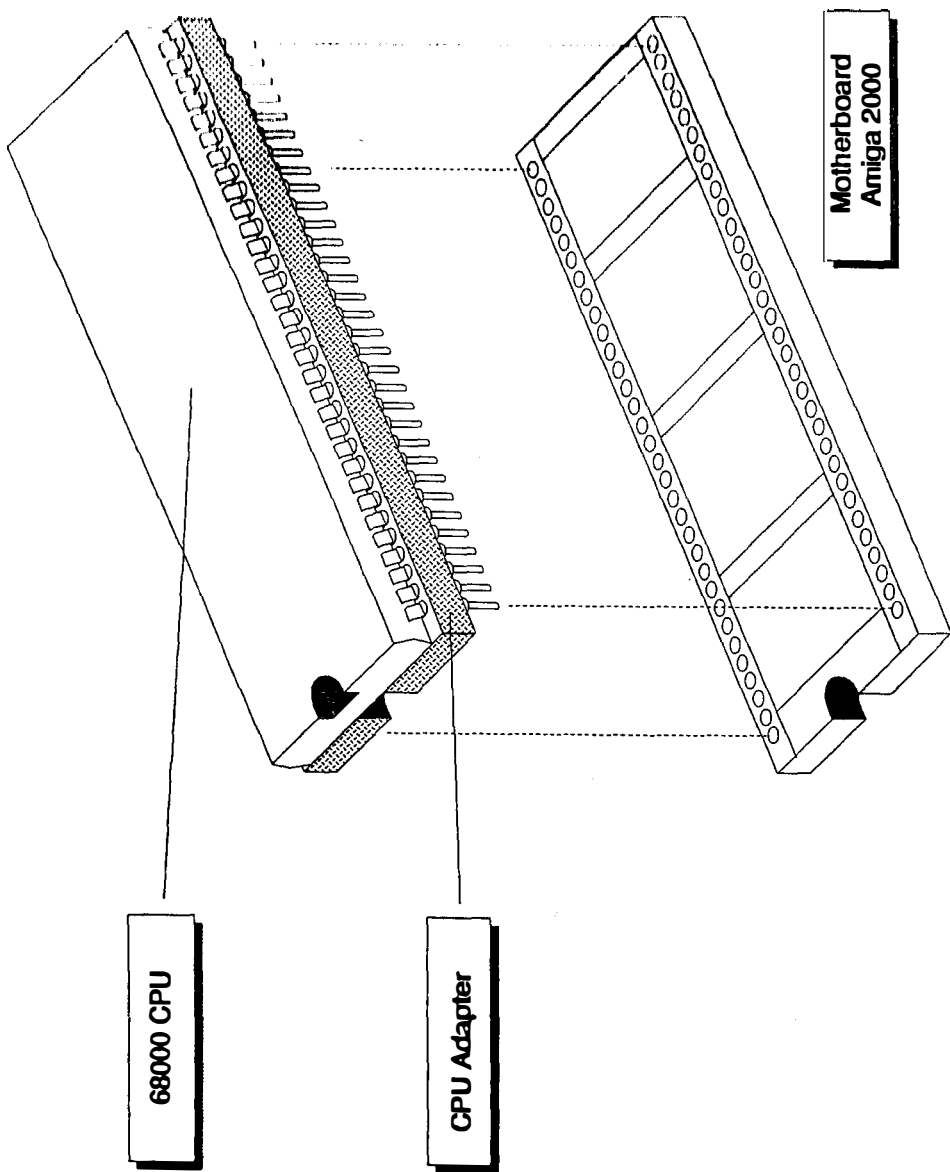


Illustration 3.3.g

### 3.4 Installation in an Amiga 3000

1. Remove all cables from the Amiga 3000 - also from the power supply - and place the computer in its normal position (view on the front of the computer, floppy disk drive(s) visible) on the antistatic work place. Now remove the 5 screws connecting the upper part of the Amiga case with the lower part using the Phillips head screwdriver and store them in a safe place (see illustration 3.4.a) One screw is located at the back and two screws each on the left and on the right side in the lower part.

2. Carefully push forward the upper part of the case and lift it at the same time. Take care that the upper part of the case does not become entangled with cables in the interior of the Amiga and thus become disconnected inadvertently (see illustration 3.4.b). Store the upper part in a safe place.

3. Golden Gate can be plugged into one of the two bridge-slots of the Amiga (see illustration 3.4.c). Before Golden Gate can be plugged in the metal bracket of the corresponding bridge-slot which closes off the Amiga at the back must be removed. Take out the corresponding screw with the Phillips head screwdriver and remove the metal bracket. Store the screw and the bracket in a safe place.

4. Now take Golden Gate out of the antistatic bag and plug it firmly into the selected bridge-slot. (Note: the CPU adapter - it is also in the antistatic bag - is **not** required for the installation in an Amiga 3000). If Golden Gate has been plugged in correctly, the metal bracket fitted at the rear of Golden Gate over the two external connectors neatly closes off again the Amiga case to the back. The metal bracket can firmly be re-connected with the case of the Amiga by using the screw taken out in step 3. (See illustration 3.4.d).

5. Before the Amiga is put together again a short check of the proper functioning shall be carried out. Connect all cables and insert a copy of the disk *Goldmine 1* into floppy disk drive DFO. Switch on the computer.

After the README file has been read the workbench appears. Afterwards switch to the Golden Gate drawer and twice click on the Golden Gate icon. After a short delay for loading the Golden Gate loading message appears with the demand to insert a MS-DOS system disk. **Golden Gate runs !** Now take out the disk *Goldmine 1* and again switch off the computer. Remove all cables. Now the Amiga can be put together again in the reverse sequence.

Please continue reading in chapter 4 of this manual.

In case the Amiga does not start again after having been switched on or if Golden Gate should not be loaded, switch off the Amiga immediately. The following questions give hints for possible sources for failure:

- (1) Are the power cords of the Amiga and the monitor re-connected properly ?
- (2) Have the keyboard and the mouse been connected properly ?
- (3) Has the monitor been connected properly ?
- (4) Has Golden Gate been plugged into one of the bridge-slots firmly and completely ?

Two further possible causes for failure might be:

Perhaps there are problems with contacting in the bridge-slot connectors of the Amiga motherboard (e.g. corrosion). In this case Golden Gate can carefully be plugged in and out for **several** times (this might remove coatings). Of course, Golden Gate can be plugged into another bridge-slot (one which might have no contact problems).

Another expansion card could disturb the operation of Golden Gate. By removing one card after the other it can be found out which card it is. If necessary the problem can afterwards be solved by plugging the respective cards into other sockets.



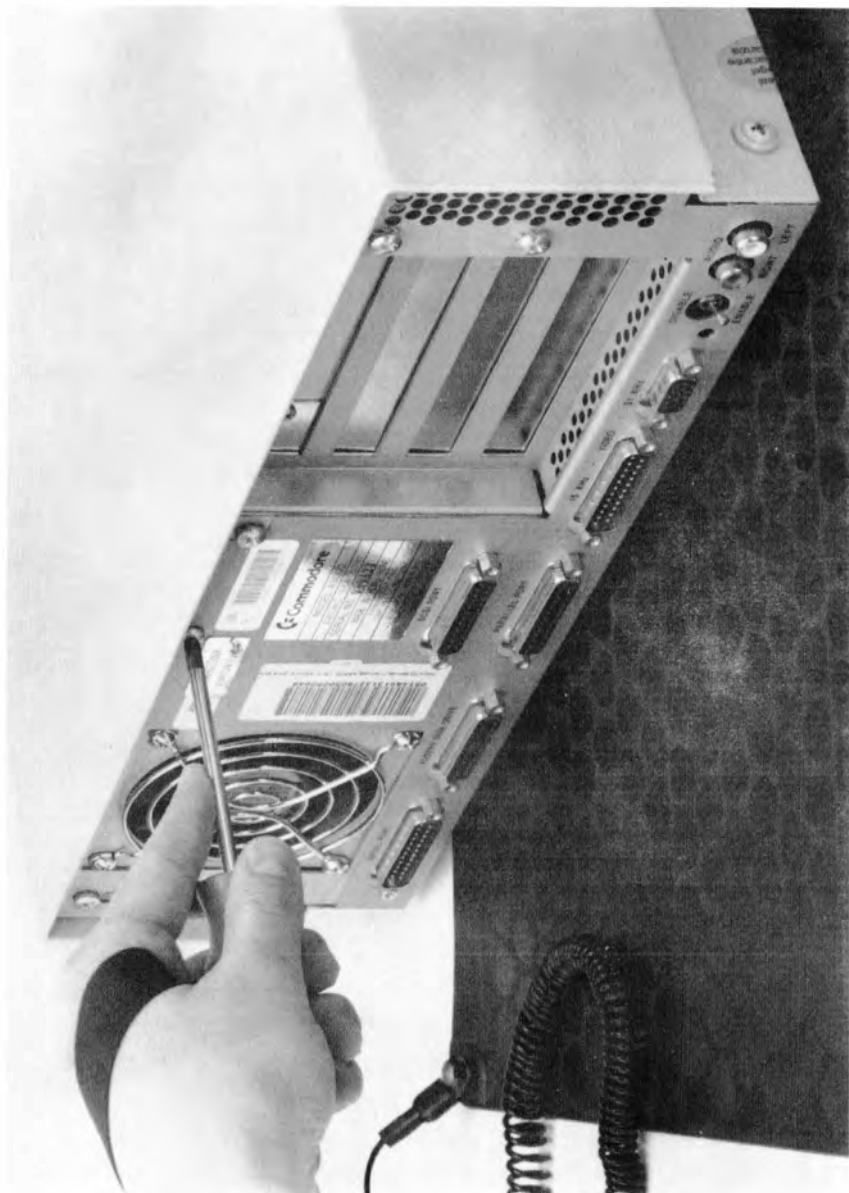


Illustration 3.4.a

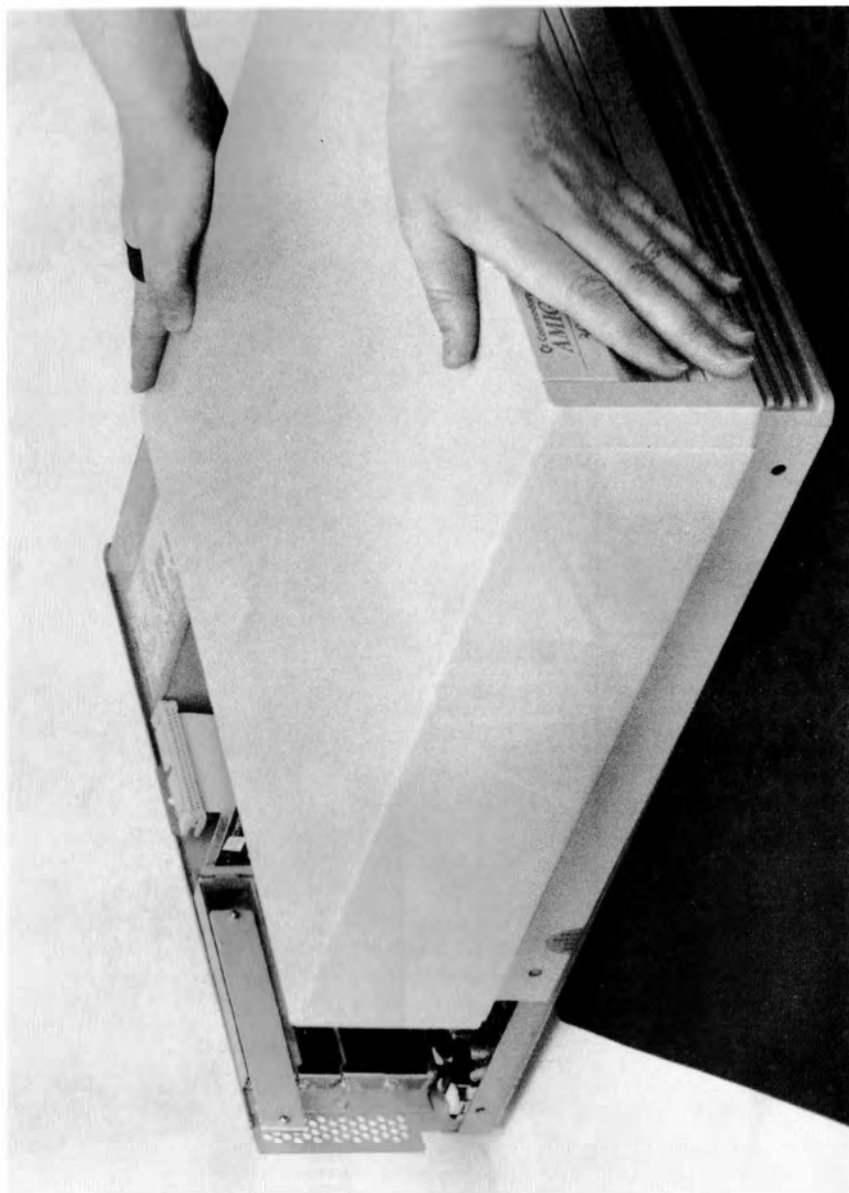


Illustration 3.4.b

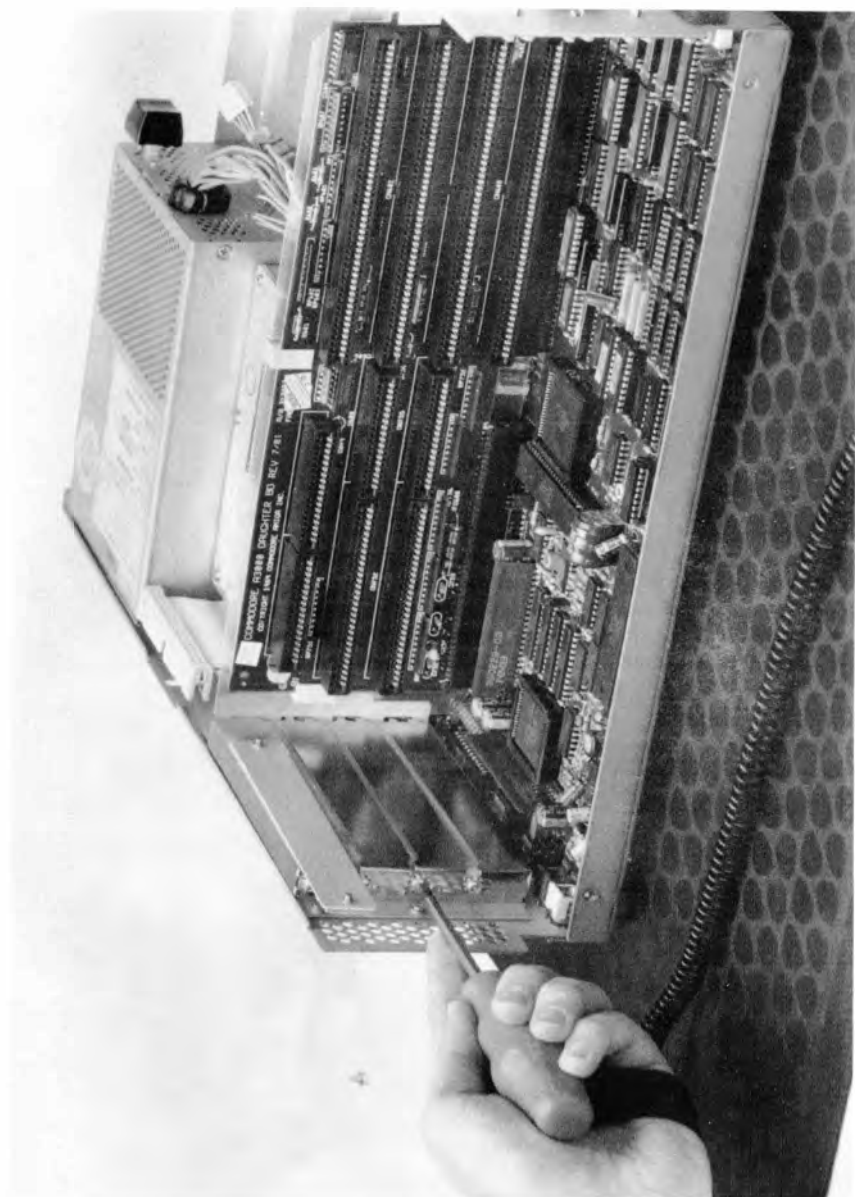


Illustration 3.4.c

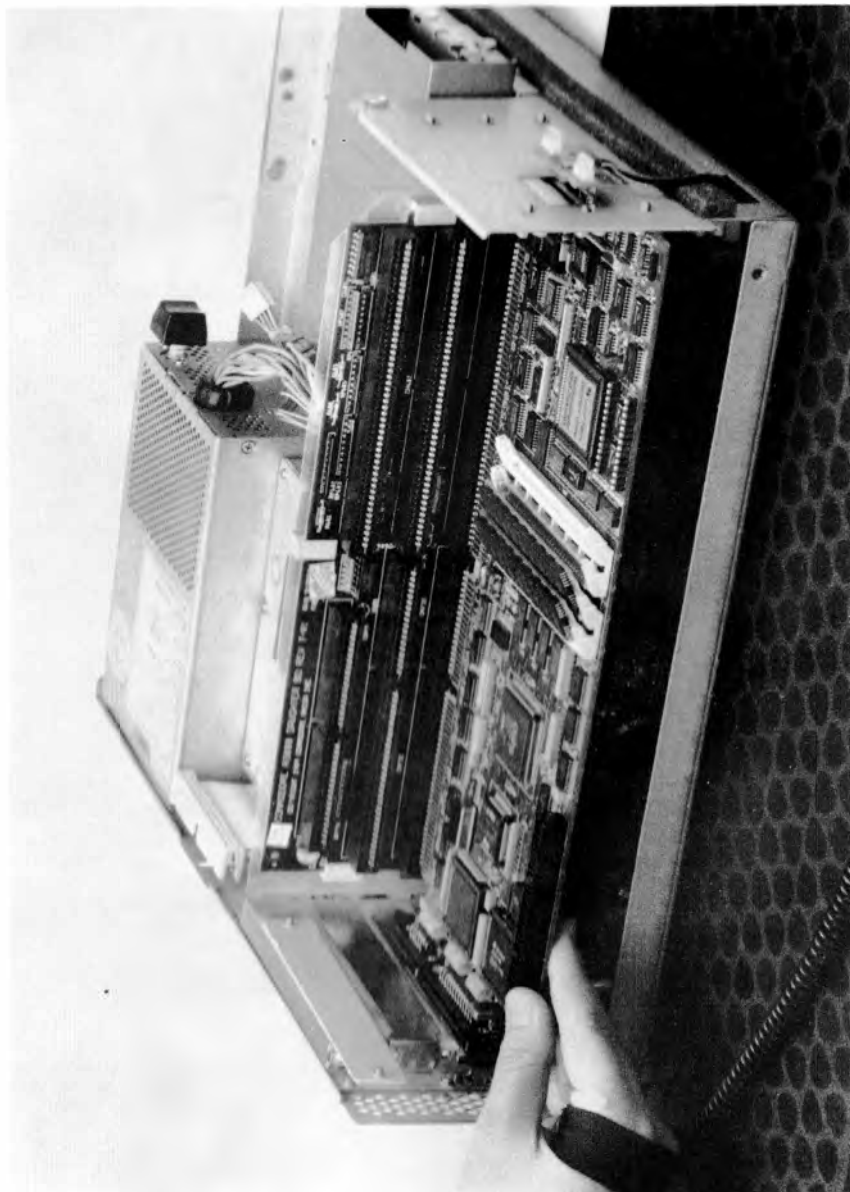


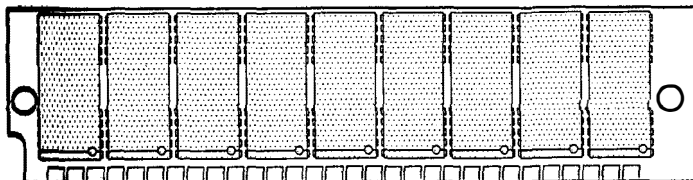
Illustration 3.4.d

## 3.5 Upgrading the Golden Gate Emulator with RAM

Golden Gate has an own PC/AT RAM expansion which can be upgraded with 4 standard SIMMs (Single Inline Memory Modules) of the types 256KB\*9, 1MB\*9 or 4MB\*9 to up to 16MB. This RAM can be used either as extended or expanded memory.

In addition 2MB or 4MB respectively of this PC/AT RAM expansion can be used as an autoconfiguring Amiga RAM expansion.

The following illustration shows a typical SIMM:



### SIMMs Required:

Capacity per SIMM	Description
256KB	256K*9-60ns
1MB	1M*9-60ns
4MB	4M*9-60ns

In order to be able to operate Golden Gate with zero wait states SIMMs with 60ns cycle-time are required.

The following table shows all the RAM configurations possible and the SIMMs used with them. S1, S2, S3, and S4 are the 4 SIMM sockets on the Golden Gate PCB (see illustration 3.5.a).

Golden Gate automatically detects the RAM configuration - no jumpers have to be set for that.

<b>S1 &amp; S2</b>	<b>S3 &amp; S4</b>	<b>Total RAM on Golden Gate</b>
-	-	<b>512KB (factory installed)</b>
256K*9	-	<b>1MB</b>
256K*9	256K*9	<b>1.5MB</b>
1M*9	-	<b>2.5MB</b>
256K*9	1M*9	<b>3MB</b>
1M*9	1M*9	<b>4.5MB</b>
4M*9	-	<b>8MB</b>
256K*9	4M*9	<b>9MB</b>
1M*9	4M*9	<b>10MB</b>
4M*9	4M*9	<b>16MB</b>

("-" stands for non existant)

## Sequence of plugging in the SIMMs:

In order to avoid mechanical encumbrances the following sequences of plugging have to be observed with the installation of the SIMM memory modules:

S1 & S2 occupied:	first S2 and then S1
S3 & S4 occupied:	first S4 and then S3
S1 to S4 occupied:	first S4, then S3, then S2 and at last S1

(See Illustration 3.5.b)

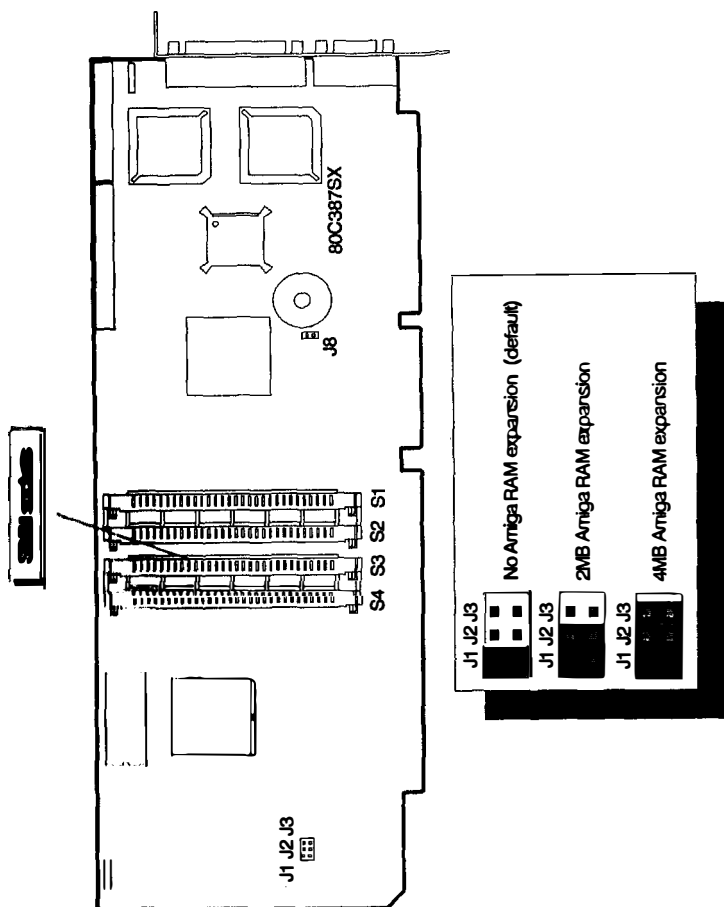


Illustration 3.5.a

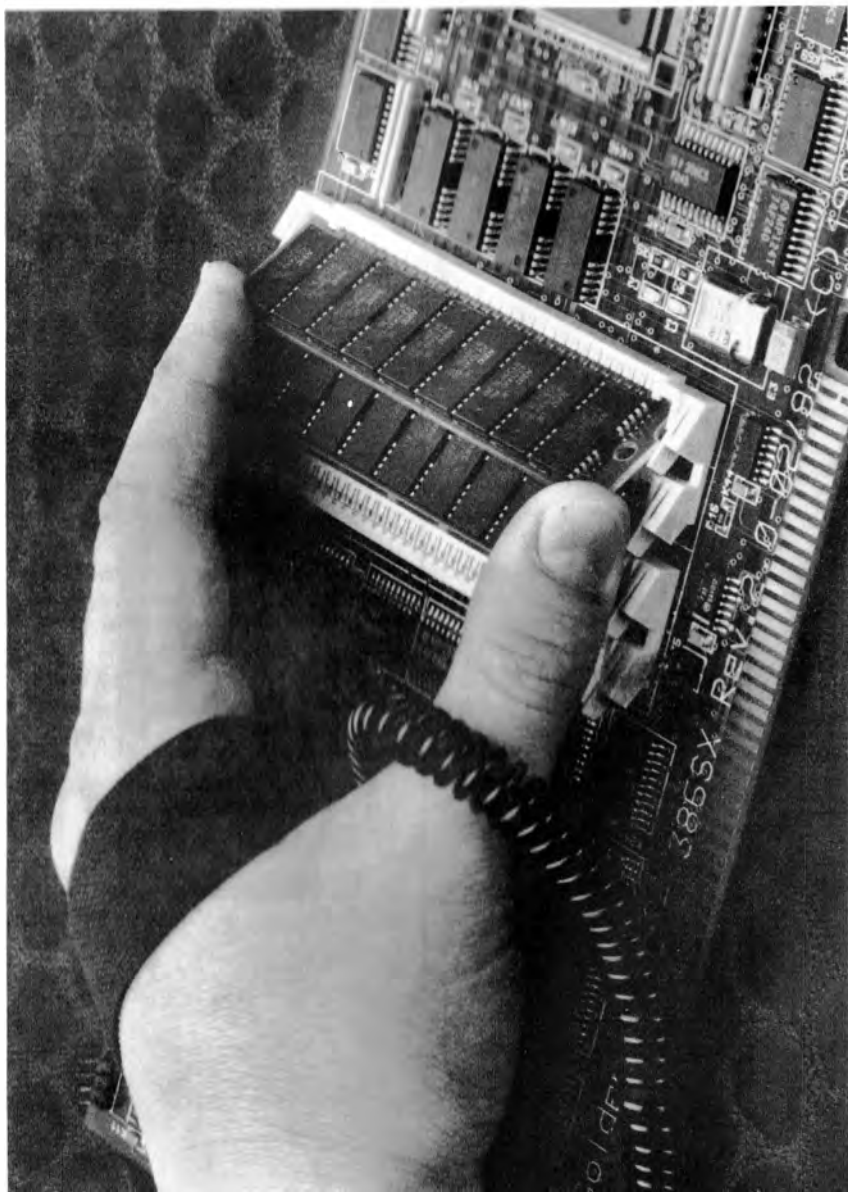


Illustration 3.5.b



### 3.5.1 Using a part of the Golden Gate PC/AT RAM Expansion as an Amiga RAM Expansion

In order to be able to use a part of the Golden Gate PC/AT RAM expansion as an autoconfiguring Amiga RAM expansion, jumper 2 on the Golden Gate PCB must be plugged (also see illustration 3.5.a). Depending on the fact whether 2MB or 4MB shall be reserved for the Amiga, also jumper 3 has to be plugged (4MB) or remain open (2MB).

The following table shows the possible configurations:

Amiga RAM expansion with	Jumper 2	Jumper 3
max. 2MB	open	open
max. 4MB	plugged	plugged

Just as with any other autoconfiguring Amiga RAM expansion with a size adjustable according to the customer's demands, the plugging of jumper 2 on the Golden Gate PCB means that during the booting of the Amiga address space for 2MB (jumper 3 not plugged) or 4MB (jumper 3 plugged) is reserved and that is also true if the corresponding RAM does not even exist on Golden Gate.

With the Golden Gate program *moremem* on the disk *Goldmine I* that part of Golden Gate RAM reserved for the Amiga can be added to the Amiga memory. The Amiga *avail* command will indicate the additional memory. (See also paragraph 7.1. of this manual).

Of course it is clear that the amount of Golden Gate-RAM reserved for the Amiga is no longer available for MS-DOS.

For example it might be one setting if Golden Gate were upgraded with 8MB RAM (two 4M\*9 SIMMs) and jumpers 2 and 3 were plugged.

Thus, in a standard Amiga 2000 (1MB) for the Amiga 5MB (4MB + 1MB) and for Golden Gate 4MB of memory were available.

It would be best if the user himself explored the variety of the possibilities offered by the flexible Golden Gate RAM expansion and thus could find the setting best suited to his demands.

## 3.6 Upgrading with a 80C387SX 25MHz Coprocessor

For an Increase In arithmetic performance Golden Gate can be upgraded with an arithmetic coprocessor 80C387SX 25MHz. For this purpose the Golden Gate PCB provides a corresponding socket.

Programs layed out for using an arithmetic coprocessor will be much more faster with some operations.

Excel, Multiplan, Lotus 1-2-3, dBase, AutoCad or Framework are examples of programs being able to use the 80C387SX 25MHz.

For an upgrade use only a coprocessor that may be used with a clock frequency of 25 MHz. (vortex order. No.: 8363).

For the Installation of the coprocessor you will find a PLCC68 IC-socket at a certain place showing a bevel at one corner on the Golden Gate PCB.

For the Installation of the 80C387SX 25MHz coprocessor the Amiga must be switched off and all cables must be removed, apart from that all instructions given for Installation of the Golden Gate emulator itself apply as well.

Illustrations 3.6.a and 3.6.b show the location of the PLCC68 socket and the orientation for plugging in the 80C387SX 25MHz coprocessor. PLEASE CHECK TWICE, that the coprocessor has been plugged in with the correct orientation.

The Golden Gate loading message Indicates whether a 80C387SX 25MHz is installed, a further software installation is not necessary.

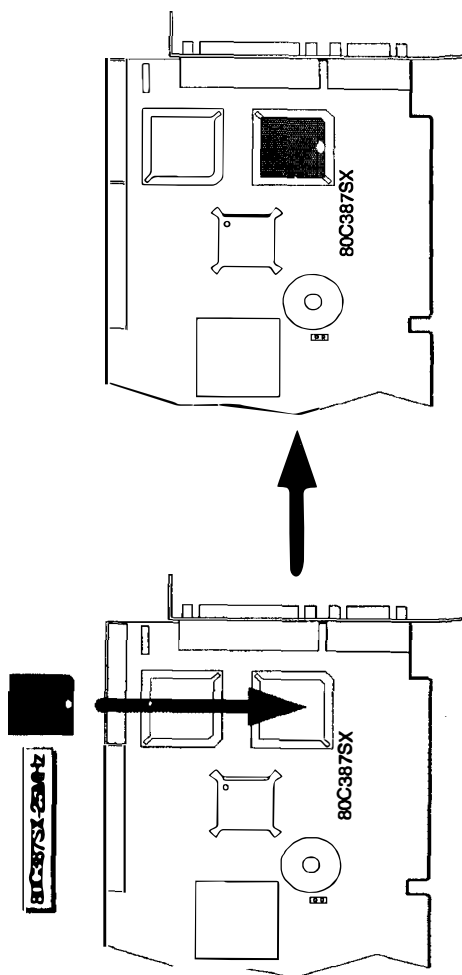


Illustration 3.6 a

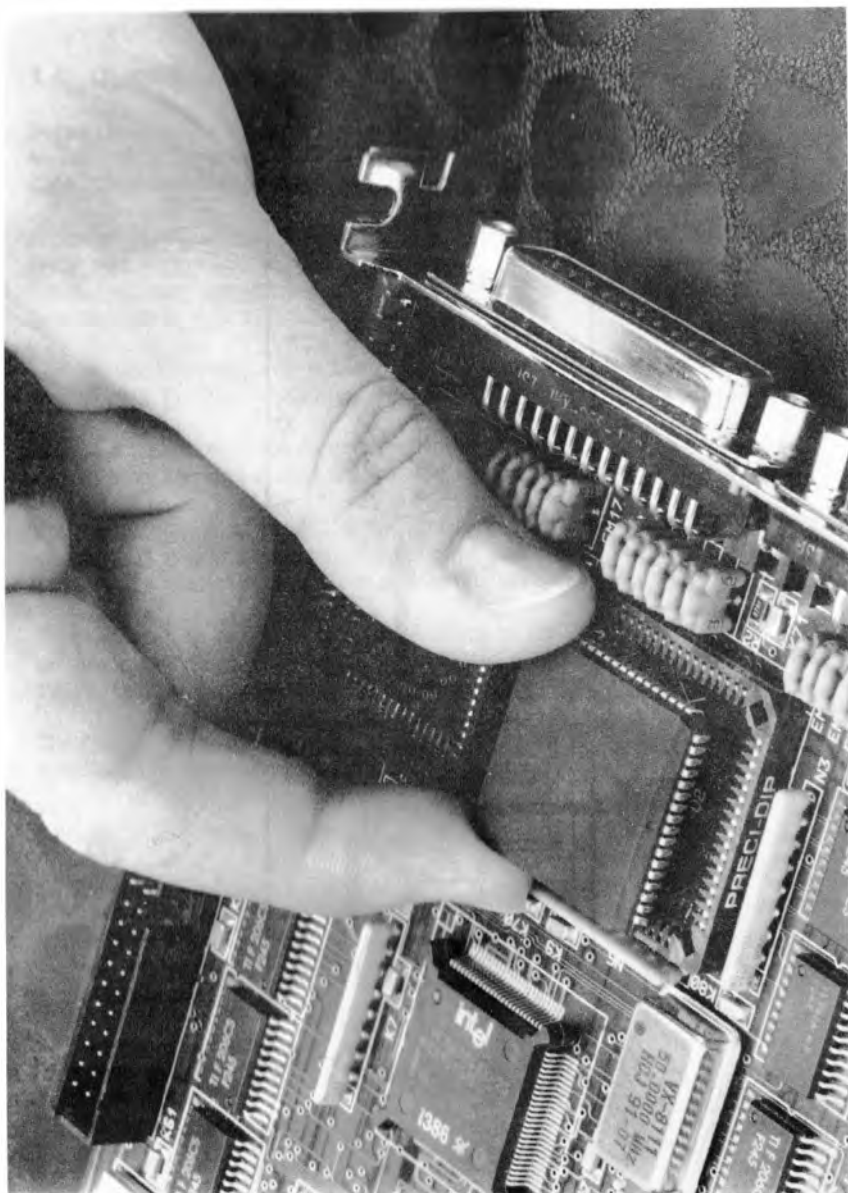


Illustration 3.6.b

### 3.7 Upgrading with a 82077AA Floppy Disk Controller

As has already been mentioned at the beginning, Golden Gate can be upgraded with an own floppy disk controller. This is the component 82077AA in the PLCC68 package (vortex order.No.: 8364).

The Golden Gate PCB provides a corresponding PLCC68 socket and suitable connections for the floppy disk drives (one external and one internal). The software that comes with Golden Gate contains all the functions to access this floppy disk controller, i.e. apart from the 82077AA and the drives with their respective connection cables (see illustration 3.7.c) nothing else is required.

As soon as the floppy disk controller has been installed, floppy disk drives of the following sizes and capacities can be used under MS-DOS:

Size	Formatted Capacity of Memory
3,5"	720KB
3,5"	1,44MB
3,5"	2,88MB
5,25"	360KB
5,25"	720KB
5,25"	1.2MB

#### Procedure:

During the installation of the 82077AA the Amiga must be switched off and all cables be removed, otherwise all the instructions given for the installation of the Golden Gate emulator itself apply.

(a) Illustrations 3.7.a and 3.7.b show the location of the PLCC68 socket and the orientation with which the 82077AA floppy disk controller must be plugged in as well as the connections for the floppy disk drives. A PLCC68 IC-socket showing a bevel at one corner is provided at a certain place of the Golden Gate PCB for the installation of the 82077AA. PLEASE CHECK TWICE, whether the 82077AA has been plugged in with the correct orientation.

(b) After the floppy disk controller has been plugged in, the connection cable is connected with Golden Gate and the floppy disk drives. All floppy disk drives must be set on **ID=1**, independent of the fact whether they are to be accessed as drive A or drive B.

By all means care must be taken that the coloured vein of the connection cable connects PIN1 of the Golden Gate connection with PIN1 of the floppy disk drives. (See Illustration 3.7.d).

After the floppy disk drives have been installed they must be connected with the power supply.

(c) The Golden Gate loading message indicates whether a floppy disk controller is installed.

In the Golden Gate *setup-program* the connected floppy disk drives must be assigned to the MS-DOS drives A and B.

Note:

The following particularity has to be taken into consideration in using the Golden Gate PC/AT floppy disk controller (also a floppy disk controller being plugged into a PC slot of the Amiga) and the corresponding drives: If no more than 512 KB RAM are installed on Golden Gate, Golden Gate *automatically* starts with the option DBA, i.e. the emulator then has 512KB DOS base memory and Extended Memory consisting of parts of the Amiga RAM.

This particularity becomes void as soon as 1MB RAM (or more) have been installed on Golden Gate (from the beginning with Golden Gate 486SLC). The emulator then starts normally and has the full amount of 640KB DOS base memory and Extended memory.

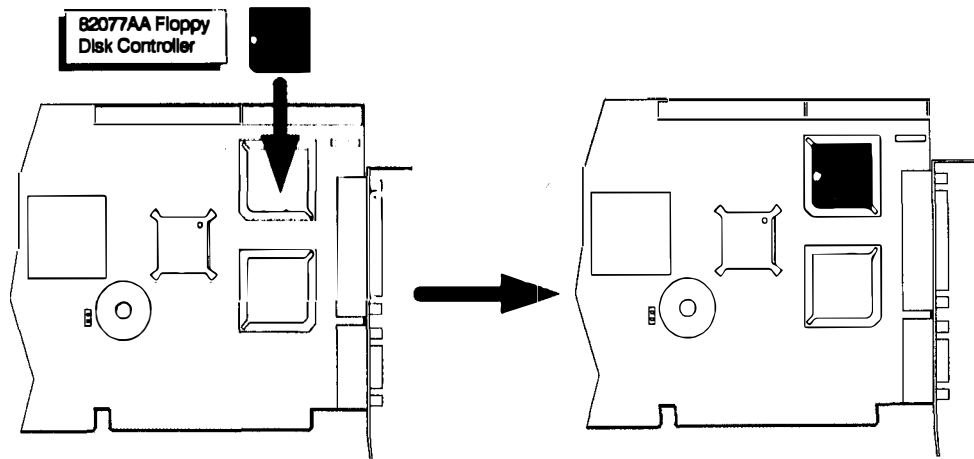


Illustration 3.7.a

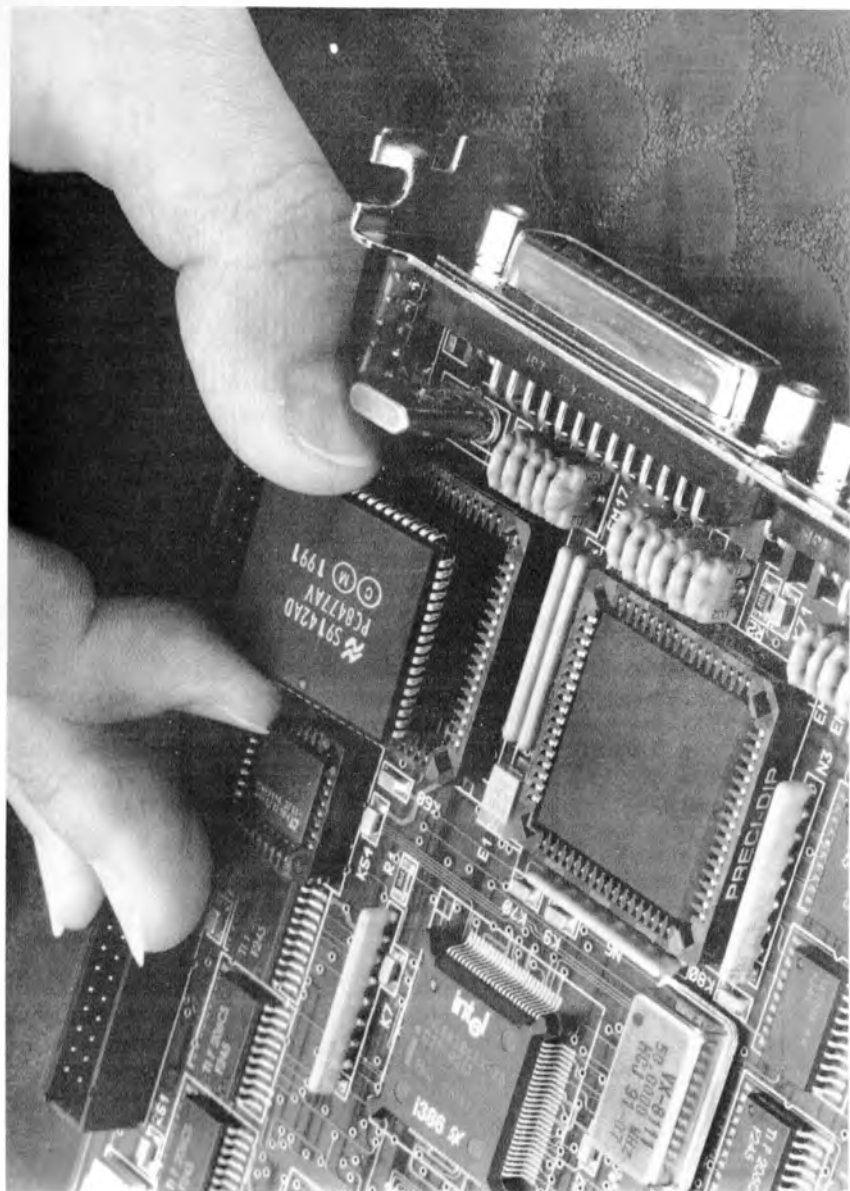


Illustration 3.7.b

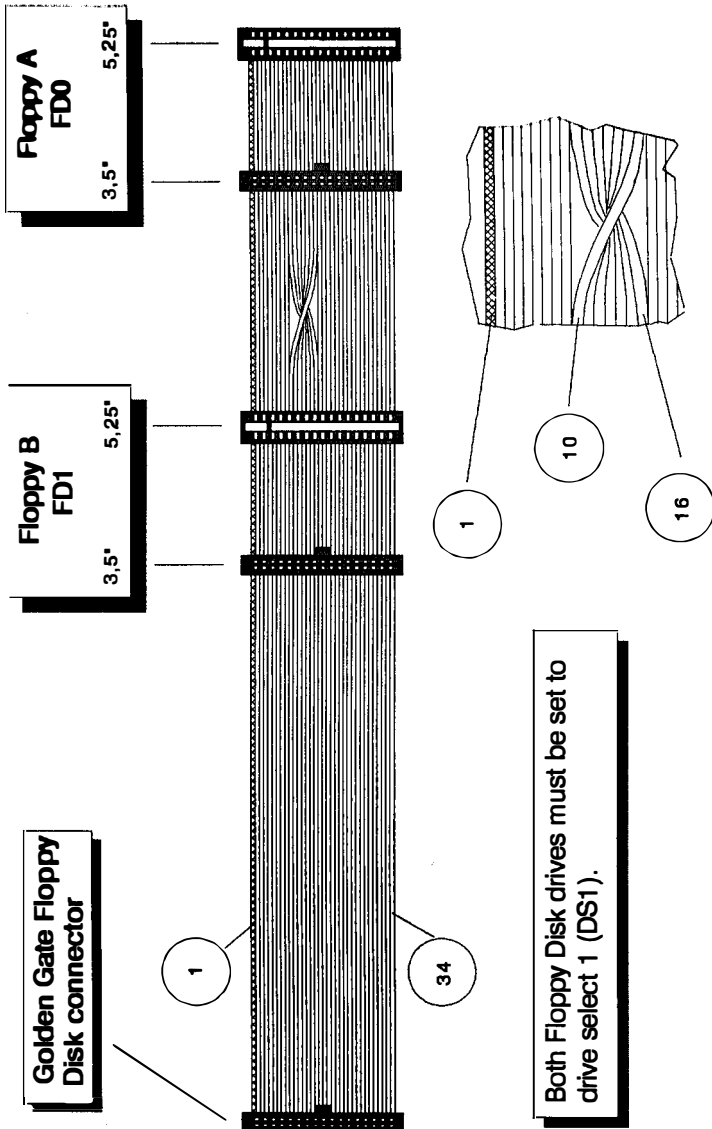


Illustration 3.7.c



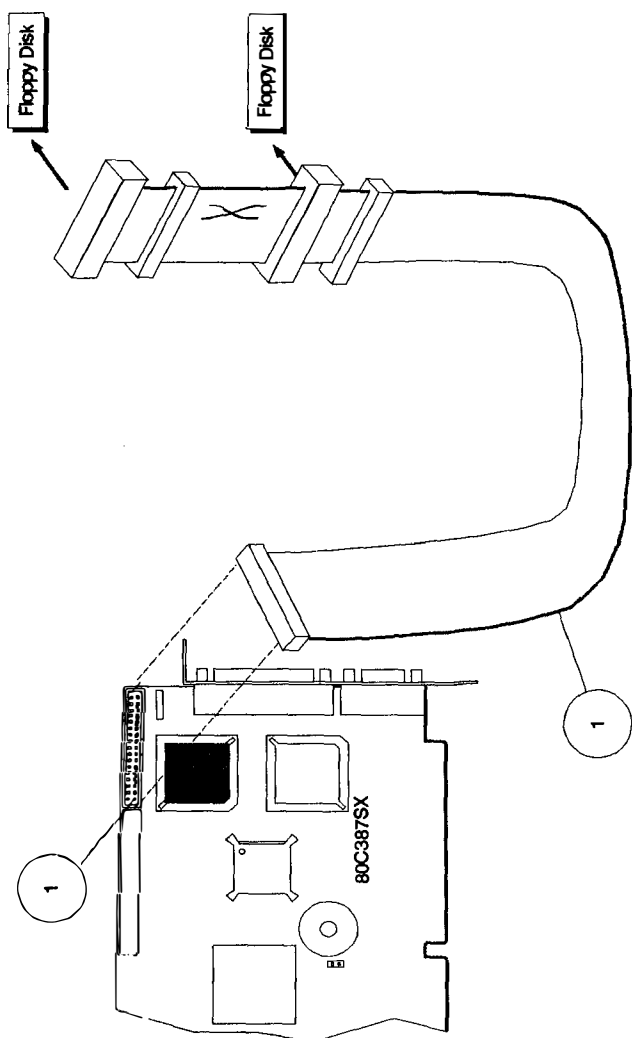


Illustration 3.7.d

## 3.8 Connecting an IDE Hard Disk Drive

As has already been mentioned at the beginning Golden Gate can access an IDE hard disk drive directly under MS-DOS.

In order to do that an IDE hard disk drive and an appropriate connection cable are required. Illustration 3.8.b shows the structure of an IDE hard disk cable.

The location of the IDE connector on the Golden Gate PCB can be found in illustration 3.8.a.

Procedure:

During the installation of the IDE hard disk drive the Amiga must be switched off and all cables must be removed, in all other respects the instructions given for the installation of the Golden Gate emulator itself do apply.

(a) Illustration 3.8.a shows the location of the IDE connector on the Golden Gate PCB. Illustration 3.8.b represents a typical IDE hard disk connection cable.

(b) While the connection cable is plugged into Golden Gate and the IDE hard disk drive, greatest care has to be taken that the coloured vein of the connection cable connects PIN1 of the Golden Gate connection and PIN1 of the IDE hard disk drive.

After the IDE hard disk drive has been installed it has to be connected with the power supply.

(c) The Golden Gate loading message indicates whether an IDE hard disk drive has been installed.

In the Golden Gate *setup-program* the connected IDE hard disk drive must be configured yet.

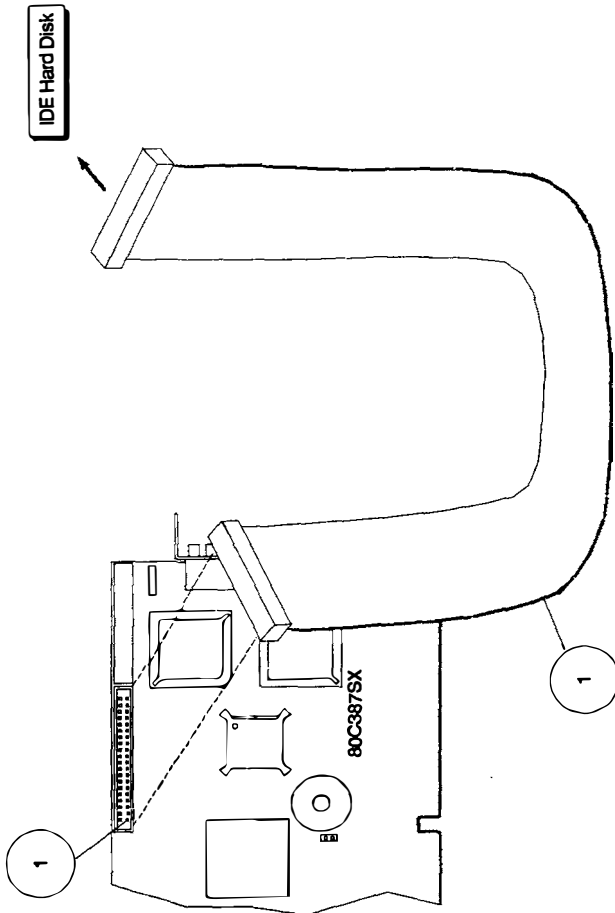


Illustration 3.8.a

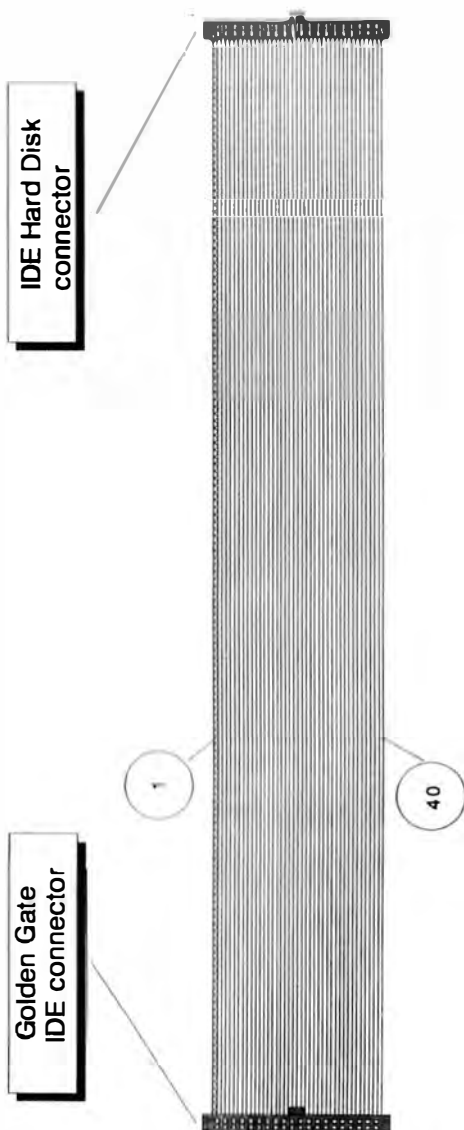


Illustration 3.8.b

## 4. The First Steps with Golden Gate

---

### 4.1 Which MS-DOS is required ?

We recommend using MS-DOS versions higher or equal to 3.2 (above all because of a support of 80 track disks). If Golden Gate has no floppy disk controller of its own at its disposal, a 3,5" MS-DOS system disk with an 80 track format with 720KB is required. If an external 5,25" Amiga floppy disk drive is available, it is also possible to boot with a 5,25" 360KB MS-DOS system disk.

If Golden Gate has been upgraded with a 82077AA floppy disk controller, also MS-DOS system disks of other formats can be used.

### 4.2 The First Operation of Golden Gate

1. Insert a copy of the disk *Goldmine I* into floppy drive DF0: and switch on the computer or reset it respectively (*Left Amiga key + Right Amiga key + CTRL key*).
2. Carefully read the contents of the README file or print it.
3. After the README file has been displayed the workbench with the Golden Gate disk symbol appears as usual. Twice click onto this symbol. In the drawer GOLDEN GATE you will find the files which are part of the delivery of the disk *Goldmine I*.
4. If the Amiga has a hard disk, copy the contents of the disk *Goldmine I* onto a hard disk partition with the help of HDINSTALL (not on the one to be later used for MS-DOS). Then remove the disk *Goldmine I* from drive DF0:.
5. In order to start Golden Gate with the settings at the point of delivery, the Golden Gate icon in the Golden Gate drawer must be clicked twice. After a short delay the Golden Gate loading message appears (It contains additional information on the Golden Gate system configuration) and also the demand to insert a MS-DOS system disk. After the operating system has been loaded the familiar MS-DOS prompt "A>" appears and Golden Gate is in operation.

The settings of Golden Gate on delivery are as follows:

- One 3,5" MS-DOS floppy disk drive (=built in Amiga drive) as MS-DOS floppy disk drive "A", no disk change recognition under Amiga-DOS.
- No hard disk.
- Hercules video emulation (2 colours, 8\*8 Font).
- The size of the existing MS-DOS base memory is 640KB.
- The size of the extended/expanded memory is zero.
- Amiga mouse as a serial Microsoft mouse (together with a Microsoft compatible driver, e.g. MOUSE.SYS) on COM1.
- Serial interface on COM2.
- Parallel interface on LPT1.

These settings can be changed with the *setup-program*.

## Notes:

### (1) Installation of the Golden Gate software on a hard disk.

Method A: Booting the Amiga computer with the disk *Goldmine I*.

This method applies always if your hard disk startup-sequence does not change the logical drives I.BS: and DEVS:, i.e. the hard disk drive on which the Golden Gate software is to be installed will later function as the boot-drive. However, in case any problems should arise, i.e. Golden Gate gives an error message with the start (e.g. Code 50, cannot open glib.library), please select

Method B: Boot the Amiga computer from the hard disk and start the Workbench. Now insert the disk *Goldmine I* and open the drawer GOLDENGATE. Start hard disk installation by double-clicking onto the icon HDInstall.

**(2) Disk Change under MS-DOS.** Due to the fact that Golden Gate fully runs as a process within the Amiga-DOS operating system a disk change under MS-DOS is recognized by Amiga-DOS, too. In order to avoid having to wait after each disk change under MS-DOS until Amiga-DOS has realized the disk change (floppy LED flashes once) this disk change recognition is switched off on delivery of Golden Gate.

Of course, all disks - independent of the fact whether recognition has been switched on or off - existing in the drives DF0:, DF1:, etc. are recognized under Amiga-DOS with switching to Amiga-DOS (with *Left Amiga key* + N) and activating the Amiga-DOS screen. (If these are MS-DOS disks, they will be indicated as BAD.)

**(3) The Golden Gate Memory Test.** The memory test at the beginning of the loading process of the Golden Gate emulator can be passed over by pressing the *ESC-key*.

This memory test, by the way, really tests the indicated memory (with some real PC/AT computers there is only a simple counting at this stage without any real testing). If after loading the Golden Gate emulator, the space key is pressed shortly while the memory test is running, the test runs endlessly. Of course, it can be aborted by pressing the *ESC* key at any time (see above).

In those cases where the PC/AT memory (base, extended, and expanded) consists of parts of the Amiga RAM, you will find that the counting up of the memory runs a little slower during a memory test.

**(4) The famous "Three-Finger-Grip".** As familiar with PC/AT computers a reset can be triggered off by simultaneously pressing the keys *Control* + *Alternate* + *Delete*.

**(5) Switching between Amiga-DOS and MS-DOS.** With the keys *Left Amiga key* + N or *Left Amiga key* + M you can switch between the Amiga-DOS and the MS-DOS screen.

When the Amiga mouse pointer appears on the MS-DOS screen, the keyboard, the mouse and the Amiga floppy disk drives are assigned to Amiga-DOS. By pressing the left mouse button once the Amiga mouse pointer is switched away and the keyboard, the mouse and the Amiga floppy disk drives are switched to MS-DOS.

**(6) Loading the Golden Gate Setup-Program.**

Immediately after each new start of the Golden Gate emulator the *setup-program* can be started by pressing the key S (= setup). The key S is also accepted during the memory test.

**(7) Terminating the Golden Gate Emulation.**

By simultaneously pressing the keys *Left Amiga key* + *Right Amiga key* + Q the emulator is removed from the memory. Of course, this means an irretrievable loss of the contents of the PC/AT memory.

The settings of Golden Gate on delivery are as follows:

- One 3,5" MS-DOS floppy disk drive (=built in Amiga drive) as MS-DOS floppy disk drive "A", no disk change recognition under Amiga-DOS.
- No hard disk.
- Hercules video emulation (2 colours, 8\*8 Font) .
- The size of the existing MS-DOS base memory is 640KB.
- The size of the extended/expanded memory is zero.
- Amiga mouse as a serial Microsoft mouse (together with a Microsoft compatible driver, e.g. MOUSE.SYS) on COM1.
- Serial interface on COM2.
- Parallel interface on LPT1.

These settings can be changed with the *setup-program*.

## Notes:

**(1) Disk Change under MS-DOS.** Due to the fact that Golden Gate fully runs as a process within the Amiga-DOS operating system a disk change under MS-DOS is recognized by Amiga-DOS, too. In order to avoid having to wait after each disk change under MS-DOS until Amiga-DOS has realized the disk change (floppy LED flashes once) this disk change recognition is switched off on delivery of Golden Gate.

Of course, all disks - independent of the fact whether recognition has been switched on or off - existing in the drives DF0:, DF1:, etc. are recognized under Amiga-DOS with switching to Amiga-DOS (with Left Amiga key + N) and activating the Amiga-DOS screen (if these are MS-DOS disks, they will be indicated as BAD.)



**(2) The Golden Gate Memory Test.** The memory test at the beginning of the loading process of the Golden Gate emulator can be passed over by pressing the ESC-key.

This memory test, by the way, really tests the indicated memory (with some real PC/AT computers there is only a simple counting at this stage without any real testing). If after loading the Golden Gate emulator, the space key is pressed shortly while the memory test is running, the test runs endlessly. Of course, it can be aborted by pressing the ESC key at any time (see above). In those cases where the PC/AT memory (base, extended, and expanded) consists of parts of the Amiga RAM, you will find that the counting up of the memory runs a little slower during a memory test.

**(3) The famous "Three-Finger-Grip".** As familiar with PC/AT computers a reset can be triggered off by simultaneously pressing the keys *Control + Alternate + Delete*.

**(4) Switching between Amiga-DOS and MS-DOS.** With the keys *Left Amiga key + N* or *Left Amiga key + M* you can switch between the Amiga-DOS and the MS-DOS screen.

When the Amiga mouse pointer appears on the MS-DOS screen, the keyboard, the mouse and the Amiga floppy disk drives are assigned to Amiga-DOS. By pressing the left mouse button once the Amiga mouse pointer is switched away and the keyboard, the mouse and the Amiga floppy disk drives are switched to MS-DOS.

**(5) Loading the Golden Gate Setup-Program.**

Immediately after each new start of the Golden Gate emulator the *setup-program* can be started by pressing the key S (= setup). The key ,S is also accepted during the memory test.

**(6) Terminating the Golden Gate Emulation.**

By simultaneously pressing the keys *Left Amiga key + Right Amiga key + Q* the emulator is removed from the memory. Of course, this means an irretrievable loss of the contents of the PC/AT memory.

## 5. The Golden Gate Setup-Program

---

Golden Gate can be adapted to the existing system components (e.g. memory, hard disk, external floppy, ...) by means of the Golden Gate *setup-program*. These components can be either the Amiga's resources (RAM, floppy disk controller, video controller, mouse etc.) as well as Golden Gate's own expansions (IDE hard disk interface, PC/AT RAM expansion etc.).

The *setup-program* works similar to the setup-programs of normal PC/AT computers.

Immediately after each new start of the Golden Gate emulator the Golden Gate *setup-program* can be called up by pressing the

### **Key S.**

The key S will also be accepted during a memory test.

The following illustrations 5.a and 5.b show the two possible setup screen masks.

The keys usable with a certain input field are always indicated in the bottom line of the screen. In addition, the *setup program* can give several messages and demands. For that purpose a corresponding message is displayed at different positions of the screen.

In the individual fields the following selections or inputs are possible:

Language Selection	
<b>Language</b>	
<i>German</i>	German Golden Gate messages (except with the <i>setup-program</i> )
<i>English</i>	English Golden Gate messages

Keyboard Setup	
<b>Type</b>	
<i>German</i>	German keyboard layout
<i>English</i>	English keyboard layout
<b>Repeat</b>	
<i>none, low, medium, high</i>	keyboard repeat rate
<b>Delay</b>	
<i>none, low, medium, high</i>	keyboard access delay

Note:

In the CONFIG.SYS or AUTOEXEC.BAT file no MS-DOS keyboard drivers shall be loaded. The Golden Gate emulation software provides all keys and key combinations according to the Amiga keyboard.

## Floppy Drive Setup

### Floppy A

MS-DOS floppy disk drive A is

*none*

non existent.

DF0-40 *Amiga*

the 40 track Amiga floppy disk drive DF0.

DF0-80 *Amiga*

the 80 track Amiga floppy disk drive DF0.

DF1-40 *Amiga*

the 40 track Amiga floppy disk drive DF1.

DF1-80 *Amiga*

the 80 track Amiga floppy disk drive DF1.

DF2-40 *Amiga*

the 40 track Amiga floppy disk drive DF2.

DF2-80 *Amiga*

the 80 track Amiga floppy disk drive DF2.

DF3-40 *Amiga*

the 40 track Amiga floppy disk drive DF3.

DF3-80 *Amiga*

the 80 track Amiga floppy disk drive DF3.

FD0-360KB *GoldenGate*

the 360KB GoldenGate floppy disk drive FD0.

FD0-720KB *GoldenGate*

the 720KB GoldenGate floppy disk drive FD0.

FD0-1,2MB *GoldenGate*

the 1,2MB GoldenGate floppy disk drive FD0.

FD0-1,44MB *GoldenGate*

the 1,44MB GoldenGate floppy disk drive FD0.

FD0-2,88MB *GoldenGate*

the 2,88MB GoldenGate floppy disk drive FD0.

FD1-360KB *GoldenGate*

the 360KB GoldenGate floppy disk drive FD1.

FD1-720KB *GoldenGate*

the 720KB GoldenGate floppy disk drive FD1.

FD1-1,2MB *GoldenGate*

the 1,2MB GoldenGate floppy disk drive FD1.

FD1-1,44MB *GoldenGate*

the 1,44MB GoldenGate floppy disk drive. FD1.

FD1-2,88MB *GoldenGate*

the 2,88MB GoldenGate floppy disk drive. FD1.

EFC-360KB *GoldenGate*

the 360KB GoldenGate floppy disk drive EFC.

EFC-720KB *GoldenGate*

the 720KB GoldenGate floppy disk drive EFC.

EFC-1,2MB *GoldenGate*

the 1,2MB GoldenGate floppy disk drive EFC.

EFC-1,44MB *GoldenGate*

the 1,44MB GoldenGate floppy disk drive EFC.

EFC-2,88MB *GoldenGate*

the 2,88MB GoldenGate floppy disk drive EFC.

FD0-360KB *ISA-bus*

the 360KB ISA-bus floppy disk drive FD0.

FD0-720KB *ISA-bus*

the 720KB ISA-bus floppy disk drive FD0.

FD0-1,2MB *ISA-bus*

the 1,2MB ISA-bus floppy disk drive FD0.

FD0-1,44MB *ISA-bus*

the 1,44MB ISA-bus floppy disk drive FD0.

FD1-360KB *ISA-bus*

the 360KB ISA-bus floppy disk drive FD1.

FD1-720KB *ISA-bus*

the 720KB ISA-bus floppy disk drive FD1.

FD1-1,2MB *ISA-bus*

the 1,2MB ISA-bus floppy disk drive FD1.

FD1-1,44MB *ISA-bus*

the 1,44MB ISA-bus floppy disk drive FD1.

## Notes:

### 1. Abbreviations Used

**DFx:** Amiga floppy disk drives (DF0, DF1, DF2 and DF3) with 40 or 80 tracks.

**FDx:** Golden Gate / ISA-bus floppy disk drives (see also paragraph 3.8). Golden Gate floppy disk drives are connected with the Golden Gate floppy disk controller. ISA-bus floppy disk drives are connected with a separate floppy disk controller card, which is plugged into a PC/AT (ISA) slot of the Amiga.

**EFC:** Floppy disk drive connected with Golden Gate's external floppy disk connector (25 pin SUB-D). (EFC = External Floppy Disk Connector)

2. A floppy disk drive having already been assigned to another MS-DOS floppy disk drive or floppy 3, can naturally no longer be selected. That means, if e.g. Amiga MS-DOS floppy disk drive A has been assigned to DF0-40, it can no longer be used for MS-DOS floppy disk drive B.

Floppy Drive Setup	
<b>Floppy B</b>	
	the MS-DOS floppy disk drive B is
<i>none</i>	non existent.
DF0-40 <i>Amiga</i>	the 40 track Amiga floppy disk drive DF0.
DF0-80 <i>Amiga</i>	the 80 track Amiga floppy disk drive DF0.
.	.
as floppy A	.
.	.
.	.
FD1-1,2MB <i>ISA-bus</i>	the 1,2MB ISA-bus floppy disk drive FD1.
FD1-1,44MB <i>ISA-bus</i>	the 1,44MB ISA-bus floppy disk drive FD1.

## Floppy Drive Setup

### Floppy 3

the third MS-DOS floppy disk drive is

*none*

non existant.

DF0-40 Amiga

the 40 track Amiga floppy disk drive DF0.

DF0-80 Amiga

the 80 track Amiga floppy disk drive DF0.

DF1-40 Amiga

the 40 track Amiga floppy disk drive DF1.

DF1-80 Amiga

the 80 track Amiga floppy disk drive DF1.

DF2-40 Amiga

the 40 track Amiga floppy disk drive DF2.

DF2-80 Amiga

the 80 track Amiga floppy disk drive DF2.

DF3-40 Amiga

the 40 track Amiga floppy disk drive DF3.

DF3-80 Amiga

the 80 track Amiga floppy disk drive DF3.

FD0-360KB GoldenGate

the 360KB GoldenGate floppy disk drive FD0.

FD0-720KB GoldenGate

the 720KB GoldenGate floppy disk drive FD0.

FD0-1,2MB GoldenGate

the 1,2MB GoldenGate floppy disk drive FD0.

FD0-1,44MB GoldenGate

the 1,44MB GoldenGate floppy disk drive FD0.

FD0-2,88MB GoldenGate

the 2,88MB GoldenGate floppy disk drive FD0.

FD1-360KB GoldenGate

the 360KB GoldenGate floppy disk drive FD1.

FD1-720KB GoldenGate

the 720KB GoldenGate floppy disk drive FD1.

FD1-1,2MB GoldenGate

the 1,2MB GoldenGate floppy disk drive FD1.

FD1-1,44MB GoldenGate

the 1,44MB GoldenGate floppy disk drive FD1.

FD1-2,88MB GoldenGate

the 2,88MB GoldenGate floppy disk drive FD1.

EFC-360KB GoldenGate

the 360KB GoldenGate floppy disk drive EFC.

EFC-720KB GoldenGate

the 720KB GoldenGate floppy disk drive EFC.

EFC-1,2MB GoldenGate

the 1,2MB GoldenGate floppy disk drive EFC.

EFC-1,44MB GoldenGate

the 1,44MB GoldenGate floppy disk drive EFC.

EFC-2,88MB GoldenGate

the 2,88MB GoldenGate floppy disk drive EFC.

In order to access this floppy disk drive under MS-DOS a suitable driver program is required (e.g. DRIVER.SYS). This drive is assigned to a drive name under MS-DOS which is unequal to A and B, that is e.g. C. The introduction of this drive name is fully controlled by the driver program and must not infringe already existing assignments of other drive names (e.g. hard disk drives etc.).

Floppy Drive Setup	
<b>Floppy Change Detection</b>	
On	A disk change under MS-DOS in an Amiga floppy disk drive (DF0, DF1, DF2 or DF3), which has been assigned to a MS-DOS floppy disk drive (A, B or 3), will at once be recognized also by Amiga-DOS.
Off	this disk change is not recognized.

**Notes:**

1 This function does not refer to floppy disk drives which are directly connected with Golden Gate or with a floppy disk controller card in the PC/AT bus.

2 Of course, all disks which are in the drives DF0 to DF3 are recognized under Amiga-DOS (in case these are MS-DOS disks, they are indicated as BAD) with switching to Amiga-DOS (with *left Amiga-key* + N) and activating the Amiga-DOS screen - independent of the fact whether the recognition is switched on or off.

Hard Disk Setup	
<b>Drive</b>	
C	MS-DOS drive C
D	MS-DOS drive D
.	
.	
Z	MS-DOS drive Z
<b>Type</b>	
<i>none</i>	non existent.
<i>Amiga Partition</i>	The MS-DOS drive selected under <i>Drive</i> is assigned to an own Amiga-DOS partition (e.g. DH1). The name of this Amiga-DOS partition is entered <b>without</b> colon in the field <i>Name</i> (e.g. DH1 and not DH1: ).
<i>Amiga File</i>	The MS-DOS drive selected under <i>Drive</i> is assigned to an Amiga-DOS file (this file can also contain several MS-DOS drives). The complete path and name of the Amiga-DOS file must be entered into the field <i>Name</i> . In addition the size of the MS-DOS drive must be given in the field <i>Capacity</i> in MB directly (e.g. DH10/WORK/DOSFILE).
<i>HD-man GoldenGate</i>	The MS-DOS drive selected under <i>Drive</i> is the IDE hard disk drive connected with Golden Gate and the hard disk parameters (cylinder, heads, sectors) are inserted <b>manually</b> .
<i>HD-auto GoldenGate</i>	The MS-DOS drive selected under <i>Drive</i> is the IDE hard disk drive connected with Golden Gate and the hard disk parameters are <b>automatically</b> handed over by the IDE hard disk drive (this function must be supported by the corresponding IDE hard disk drive).



Hard Disk Setup	
<b>Drive</b>	
C	MS-DOS drive C
D	MS-DOS drive D
.	
.	
Z	MS-DOS drive Z
<b>Type</b>	
<i>none</i>	non existant.
<i>Amiga Partition</i>	The MS-DOS drive selected under <i>Drive</i> is assigned to an own Amiga-DOS partition (e.g. DH1). The name of this Amiga-DOS partition is entered <u>without</u> colon in the field <i>Name</i> (e.g. DH1 and not DH1: ).
<i>Amiga File</i>	The MS-DOS drive selected under <i>Drive</i> is assigned to an Amiga-DOS file (this file can also contain several MS-DOS drives). The complete path and name of the Amiga-DOS file must be entered into the field <i>Name</i> . In addition the size of the MS-DOS drive must be given in the field <i>Capacity</i> in MB directly (e.g.: DH0:WORK/DOSFILE).
<i>HD-man GoldenGate</i>	The MS-DOS drive selected under <i>Drive</i> is the IDE hard disk drive connected with Golden Gate and the hard disk parameters (cylinder, heads, sectors) are inserted <i>manually</i> .
<i>HD-auto GoldenGate</i>	The MS-DOS drive selected under <i>Drive</i> is the IDE hard disk drive connected with Golden Gate and the hard disk parameters are <i>automatically</i> handed over by the IDE hard disk drive (this function must be supported by the corresponding IDE hard disk drive).

Hard Disk Setup	
<b>Drive</b>	
C	MS-DOS drive C
D	MS-DOS drive D
.	
.	
Z	MS-DOS drive Z
<b>Type</b>	
<i>none</i>	non existent.
<i>Amiga Partition</i>	The MS-DOS drive selected under <i>Drive</i> is assigned to an own Amiga-DOS partition (e.g. DH1). The name of this Amiga-DOS partition is entered <i>without</i> colon in the field <i>Name</i> (e.g. DH1 and not DH1: ).
<i>Amiga File</i>	The MS-DOS drive selected under <i>Drive</i> is assigned to an Amiga-DOS file (this file can also contain several MS-DOS drives). The complete path and name of the Amiga-DOS file must be entered into the field <i>Name</i> . In addition the size of the MS-DOS drive must be given in the field <i>Capacity</i> in MB directly (e.g. D110/WORK/DOSFILE).
<i>HD-man GoldenGate</i>	The MS-DOS drive selected under <i>Drive</i> is the IDE hard disk drive connected with Golden Gate and the hard disk parameters (cylinder, heads, sectors) are inserted <i>manually</i> .
<i>HD-auto GoldenGate</i>	The MS-DOS drive selected under <i>Drive</i> is the IDE hard disk drive connected with Golden Gate and the hard disk parameters are <i>automatically</i> handed over by the IDE hard disk drive (this function must be supported by the corresponding IDE hard disk drive).

Hard Disk Setup	
HD0-man ISA-bus	The MS-DOS drive selected under <i>Drive</i> is the hard disk drive 0 that is connected with the IDE adapter or hard disk controller (e.g. WD1003), which is in a PC/AT slot of the Amiga. The hard disk parameters have to be inserted <i>manually</i> .
HD0-auto ISA-bus	The MS-DOS drive selected under <i>Drive</i> is the IDE hard disk drive 0, that is connected with the IDE adapter being plugged into a PC/AT slot of the Amiga. The hard disk parameters are handed over <i>automatically</i> by the IDE hard disk drive (this function must be supported by the corresponding IDE hard disk drive).
HD1-man ISA-bus	The MS-DOS drive selected under <i>Drive</i> is the hard disk drive 1, that is connected with the IDE adapter or hard disk controller (e.g. WD1003), which is plugged into a PC/AT of the Amiga. The hard disk parameters must be entered <i>manually</i> .
HD1-auto ISA-bus	The MS-DOS drive selected under <i>Drive</i> is the IDE hard disk drive 1, that is connected with the IDE adapter, which is plugged into a PC/AT slot of the Amiga. The hard disk parameters are handed over <i>automatically</i> by the IDE hard disk drive (this function must be supported by the corresponding IDE hard disk drive).

**Notes:**

1. With the key S <S=Swap Drives> the sequence of two MS-DOS drives can be swapped.
2. If *Type* is neither an *Amiga Partition* nor an *Amiga File*, an extensive list with hard disk parameter sets can be indicated with the key T <T=Hard Disk Table> in the field No. from which a certain entry can be taken.
3. Further information about the types *Amiga Partition* and *Amiga File* can be found in paragraph 6.1.

## 4. List of existing disk parameter sets

The Golden Gate BIOS contains a series of hard disk parameter sets, which can be selected here. If No. 15 is selected, the parameters can be entered manually. We point out explicitly that a hard disk drive will only work properly, if the parameters selected here are exactly correct.

The exact parameters can usually be taken from the manual for a certain hard disk drive.

5. In order to *manually* enter the parameters of a certain hard disk drive number 15 has to be selected: No. 15 ,

6. The *automatic* parameter transfer must be supported by the installed IDE hard disk drive. An *automatically* transferred parameter set will not be displayed in the *setup-program*

Boot Mode Selection	
<b>Boot Mode</b>	
<i>Floppy</i>	It will always be tried first to load MS-DOS from MS-DOS floppy disk drive A. If there is no disk in the drive or if it does not contain any valid data, MS-DOS might still be loaded from MS-DOS drive C by pressing the <ENTER> key.
<i>Hard Disk</i>	MS-DOS is loaded from MS-DOS drive C on principle.

Note:

You have to pay attention to the following particularity in using a PC/XT hard disk controller (e.g. WD1002,OMTI5520/27, Adaptec 2072) or a SCSI host adapter (e.g. AHA 1540) in a PC slot of the Amiga: If no more than 512 KB RAM are installed on Golden Gate, Golden Gate must be started with the option DBA, i.e. the emulator then has 512 KB DOS base memory and Extended Memory consisting of parts of the Amiga RAM. This particularity becomes void as soon as 1MB RAM (or more) have been installed on Golden Gate. The emulator then starts normally and has the full amount of 640KB DOS base memory and Extended Memory. In both cases the *Type* must be set to *none* in the Golden Gate Setup program under *Hard Disk Setup*.

## Video Setup

### Video Adapter

ISA-bus	The video output under MS-DOS is done by a graphics card (EGA or VGA), which is plugged into a PC/AT (ISA) slot of the Amiga and is connected with a suitable monitor (Multisync, VGA).
CGA-16	The video output under MS-DOS is done on the Amiga monitor (e.g. 1084). A CGA video adapter with 16 colours is emulated in the text mode.
CGA-8	see above, but 8 fixed colours in the textmode.
CGA-4	see above, but 4 fixed colours in the textmode.
CGA-A8	see above, but with 8 variable colours in the textmode.
CGA-A4	see above, but with 4 variable colours in the textmode.
Olivetti-16	The video output under MS-DOS is done on the Amiga Monitor (e.g. 1084). Certain functions of an Olivetti video adapter are emulated with 16 colours in the textmode.
Olivetti-8	see above, but 8 fixed colours in the textmode.
Olivetti-4	see above, but 4 fixed colours in the textmode.
Olivetti-A8	see above, but with 8 variable colours in the textmode.
Olivetti-A4	see above, but with 4 variable colours in the textmode.
Hercules-16	The video output under MS-DOS is done on the Amiga monitor (e.g. 1084). A
	(Interlace-Mode) is emulated.
Hercules-8	The video output under MS-DOS is done on the Amiga monitor (e.g. 1084). A Hercules video adapter with an 8*8 font (no Interlace-Mode) is emulated.

**Video Setup**

T3100-16	The video output under MS-DOS is done on the Amiga monitor (e.g. 1084). Certain functions of a Toshiba 3100 video adapter with 16 colours in the textmode are emulated.
T3100-8	see above, but 8 fixed colours in the textmode.
T3100-4	see above, but 4 fixed colours in the textmode.
T3100-A8	see above, but with 8 variable colours in the textmode.
T3100-A4	see above, but with 4 variable colours in the textmode.
EGAmongo-16	The video output under MS-DOS is done on the Amiga monitor (e.g. 1084). Certain functions of an EGA monochrome video adapter with 16 colours are emulated in the textmode.
EGAmongo-8	see above, but 8 fixed colours in the textmode.
EGAmongo-4	see above, but 4 fixed colours in the textmode.
EGAmongo-A8	see above, but with 8 variable colours in the textmode.
EGAmongo-A4	see above, but with 4 variable colours in the textmode.
VGAmono-16	The video output under MS-DOS is done on the Amiga monitor (e.g. 1084). Certain functions of a VGA monochrome video adapter with 16 colours are emulated in the textmode.
VGAmono-8	see above, but 8 fixed colours in the textmode.
VGAmono-4	see above, but 4 fixed colours in the textmode.
VGAmono-A8	see above, but with 8 variable colours in the textmode.
VGAmono-A4	see above, but with 4 variable colours in the textmode.



**Notes:**

1. The graphics resolution of the Golden Gate video emulations are as follows:

<i>Emulation</i>	<i>Resolution</i>	<i>Number of Colours</i>
CGA	320*200/640*200	4/2
Hercules	720*348	2
Olivetti	640*400	2
T3100	640*400	2
EGAmmono	640*350	2
VGAmono	640*480	2

2. As soon as there is an ISA graphics card (EGA or VGA) in a PCAT (ISA) slot of the Amiga the screenplay of the emulator is deviated automatically to this graphics card and the connected monitor.

Memory Setup	
<b>Expanded Memory</b>	
0KB	Should always be put on 0.
<b>Port Address</b>	
208h-20Ah	Port addresses for expanded memory hardware.
218h-21Ah	Alternative port addresses.
<b>Extended Memory</b>	
xxMB	Size of the existing extended memory. If there is no Amiga RAM reserved for Golden Gate this is exclusively RAM that is located on Golden Gate itself.
<b>Use Amiga Memory</b>	
No	There is no Amiga RAM available for Golden Gate, i.e. the complete amount of extended memory which might be required has to be there on Golden Gate itself.
Chip-20%	80% of the Amiga Chip RAM are available for Golden Gate as extended memory.
Chip-30%	70% -----
Chip-40%	60% -----
Chip-50%	50% -----
FAST-20%	80% of the Amiga FAST RAM are available for Golden Gate as extended memory.
FAST-30%	70% -----
FAST-40%	60% -----
FAST-50%	50% -----
PUBLIC-20%	80% of the Amiga RAM - independent of the fact whether Chip - or FAST-RAM are available for Golden Gate as extended memory.
PUBLIC-30%	70% -----
PUBLIC-40%	60% -----
PUBLIC-50%	50% -----





**Note:**

The different selections with Use Amiga Memory reflect different strategies with the integration of the Amiga RAM for Golden Gate's extended memory. With Chip-xx% almost only Chip-RAM is reserved for Golden Gate. With FAST-xx% almost only FAST-RAM is reserved for Golden Gate. If Public-xx% has been selected, no differences are taken into consideration with the reservation.

Communication Ports Setup	
<b>Serial</b>	
ISA-bus	The serial interface is located on an interface card which is plugged into a PC/AT (ISA) slot of the Amiga.
COM1	The serial interface of the Amiga is available under MS-DOS as COM1.
COM2	The serial interface of the Amiga is available under MS-DOS as COM2.
<b>Mouse</b>	
ISA-bus	The mouse is accessed by an interface card which is in a PC/AT (ISA) slot of the Amiga.
COM1	The Amiga mouse is available under MS-DOS as a serial Microsoft mouse, using COM1.
COM2	The Amiga mouse is available under MS-DOS as a serial Microsoft mouse, using COM2.
<b>Parallel</b>	
ISA-bus	The parallel interface is located on an interface card, which is plugged into a PC/AT (ISA) slot of the Amiga.
LPT1	The parallel interface of the Amiga is available under MS-DOS as LPT1.
LPT2	The parallel interface of the Amiga is available under MS-DOS as LPT2.

Note:

If the serial interface has been assigned to COM1 under MS-DOS, the Amiga mouse can furthermore occupy only COM2 .

Speed Selection	
<b>Bus Speed</b>	
<i>High</i>	10 MHz PC/AT bus speed.
<i>Low</i>	8 MHz PC/AT bus speed (e.g. for older expansion cards).
<b>RAM Speed</b>	
60ns-SIMMs	With 60ns SIMMs the full speed of the Golden Gate emulator is achieved.
80ns-SIMMs	With 80ns SIMMs Golden Gate works on average with 1 wait state.

Note:

Only very few slot cards work properly if the bus-speed (*Bus-Speed*) is set to *High*. Thus Golden Gate is delivered with *Bus-Speed* = *Low*. This setting should be kept and not be altered.

Shadow RAM Setup	
<b>System BIOS</b>	
<i>Enable</i>	Golden Gate's BIOS Shadowing is active.
<i>Disable</i>	No BIOS Shadowing.
<b>C000:0000 - C000:7FFF</b>	
<i>Enable</i>	Shadowing of the address-area C000:0000 up to C000:7FFF (32KB) are active.
<i>Disable</i>	Shadowing of the address-area C000:0000 up to C000:7FFF (32KB) are not active.
.	.
.	.
.	.
.	.
<b>E000:8000 - E000:FFFF</b>	
<i>Enable</i>	Shadowing of the address-area E000:8000 up to E000:FFFF (32KB) are active.
<i>Disable</i>	Shadowing of the address-area E000:8000 up to E000:FFFF (32KB) are not active.

## Notes:

- Shadowing can be enabled only if **at least 1MB RAM** is installed on Golden Gate. With shadowing a considerable increase in speed can be achieved, since the corresponding program to be shadowed does not have to run in a slow memory any longer (e.g. EPROM- or Amiga-RAM), but can run with full speed in the Golden Gate RAM.
- If Golden Gate has only 1MB of own RAM, either 384KB of extended memory or shadowing can be used. In any case, we recommend to enable the system BIOS shadowing.

## 6. The Operation of Hard Disk Drives

The following two paragraphs describe the application and installation of hard disk drives in connection with Golden Gate.

Paragraph 6.1 explains the integration and application of the Amiga hard disk for Golden Gate.

Paragraph 6.2 explains the putting into operation of a PC/AT hard disk drive, that has either been connected directly with Golden Gate (IDE), or is accessed via a controller card in a PC/AT (ISA) slot of the Amiga.

At this stage we would like to point out explicitly that the methods described in 6.1 and 6.2 can be applied either independent of each other or *simultaneously*.

Example:

MS-DOS drive	assigned to
C	IDE hard disk drive to Golden Gate's IDE interface.
D	Partition DH2 of the Amiga hard disk.
E	The file DH0:TEST/DOSFILE.



## 6.1 Using the Amiga Hard Disk for Golden Gate

Golden Gate can utilise Commodore-compatible hard disk subsystems (e.g. Commodore A2091 or GVP Series II) under MS-DOS.

**Golden Gate provides two ways to use the hard disk under MS-DOS:**

**I. Amiga Partition:** Direct assignment of Amiga-DOS partitions to MS-DOS drives.

**and/or**

**II. Amiga File:** Assignment of one or several MS-DOS drives to a particular file, which is situated within an Amiga-DOS partition.

The direct assignment allows the fastest possible access to the data of the hard disk, but the corresponding partition(s) can NO LONGER be used under Amiga-DOS. If already existing Amiga-DOS partitions shall be used as MS-DOS drives, their contents are IRRETRIEVABLY LOST !! - THEREFORE: by all means save the contents beforehand.

An assignment to an Amiga-DOS file has the advantage that not complete Amiga-DOS partitions must be "sacrificed" for operation under MS-DOS. However, it takes a little longer to get access to the data (Amiga-DOS filesystem overhead).

With the installation the following steps have to be taken:

1. Select or install corresponding partitions under Amiga-DOS. For this purpose the programs delivered together with the hard disk must be used.
2. Adjust boot-mode Floppy in the Golden Gate setup-program and now enter the name(s) of the desired Amiga-DOS partition(s) (possibility I: Amiga Partition) or enter the path, file name and size for the Amiga-DOS file to be used (possibility II: Amiga File).

If the decision has been made in favour of possibility I, by all means care must be taken that the Amiga-DOS partition from which the Amiga boots (DH0) is NOT assigned to a MS-DOS drive. The same applies for the Amiga-DOS partition (if this is a different one than D110) onto which the Golden Gate software has been copied with F110INSTV.ALI.

The input format for possibility I is:

Drive C Type Amiga Partition Name DH1

It is important that the colon behind the name must on NO ACCOUNT be entered: that is e.g. "DH1" and not "DH1:". The capacity of the selected partitions will then be displayed automatically in the next line under *Capacity*.

The input format for possibility II is:

Drive C Type Amiga File Name DH0:TEST/DOSFILE  
Capacity [MB] xx

The capacity (xx) of the MS-DOS drive must be entered in the next line under *Capacity* in MB. The *setup-program* automatically checks whether an Amiga file of the desired size can be created. The input format in the field *Name* corresponds to the Amiga-DOS conventions.

Example for possibility I: 4 Amiga (xx) partitions shall be used under MS-DOS as MS-DOS drives (C, D, and E). Altogether 6 Amiga-DOS partitions are available: D110, D111, D112, D113, D114, and DH5. DH1 shall be assigned as MS-DOS drive C, D113 as MS-DOS drive D and DH4 as MS-DOS drive E. In order to do so the following entries have to be made:

Drive C Type Amiga Partition Name DH1  
Drive D Type Amiga Partition Name DH3  
Drive E Type Amiga Partition Name DH4

Example for possibility II: 3 drives C, D, and E shall be installed for MS-DOS.

Drive C	Type <b>Amiga File</b>	Name <b>DH0:TEST/DOSFILE</b>
		Capacity [MB]
		<b>7</b>

Drive D	Type <b>Amiga File</b>	Name <b>DH0:TEST/DOSFILE</b>
		Capacity [MB]
		<b>10</b>

Drive E	Type <b>Amiga File</b>	Name <b>DH0:TEST/DOSFILE</b>
		Capacity [MB]
		<b>10</b>

i.e. that within the Amiga-DOS partition DH0 in the drawer TEST a file with the name DOSFILE is started which has a complete size of about 27MB.

After all entries have been made and also been accepted by the Golden Gate *setup-program*, the *setup-program* can be left by the keys F5 and F9.

3. Now Golden Gate is started again. Insert a MS-DOS system disk into the MS-DOS floppy disk drive A and load it.
4. With the MS-DOS program FDISK install the MS-DOS drives C and D (if assigned in the *setup-program*). (Note: drive D is selected in FDISK by selecting the FDISK menu-item "5. Select Other Drive" ). Answer all questions from FDISK simply with <ENTER>.
5. Then load MS-DOS again via the floppy disk.
6. Then format the MS-DOS drive C with the MS-DOS program FORMAT:  
For that you have to enter: A>FORMAT C:/S<ENTER>  
the parameter "/S" causes a copying of the MS-DOS operating system onto drive C.

7. Then also format MS-DOS drive D (if existent):  
For that purpose enter: `A>FORMAT D:<ENTER>`.  
Format partitions E, F etc. (if assigned in *INSTAL.I*.) with the vortex formatting program *PFORMAT*. *PFORMAT* is on the disk *Goldmine II*.  
`PFORMAT E:<ENTER>` etc.
8. Now the contents of the MS-DOS system disk can be copied with the MS-DOS program *COPY* onto drive C:  
`A>COPY *.* C:<ENTER>`.  
If drives E, F etc. have been assigned in the Golden Gate *setup-program*, the file *CONFIG.SYS* has been completed with the following line  
`DEVICE=HDT.SYS`  
Afterwards *HDT.SYS* has to be copied from the disk *Goldmine II* into the root-directory of MS-DOS drive C.

## Notes:

### (1) "Extended Partition" with MS-DOS versions higher/equal 3.3.

With MS-DOS versions from 3.3. upwards in comparison to older versions of MS-DOS also more than two drives (C and D) can be installed with the MS-DOS program *FDISK*. This happens with the help of the so-called "Extended-Partition" without the drives E, F, etc. having to be assigned to that in the Golden Gate *setup-program* (also see relevant MS-DOS literature).

If this opportunity shall be used, only two drives may be assigned as MS-DOS drives in the Golden Gate *setup-program*, C and D).

The actual installation of the drives E, F, etc. in the "Extended Partition" is then undertaken by *FDISK*. Afterwards these partitions, too, (just like C and D) have to be formatted with the MS-DOS program *FORMAT*. Integration of *HDT.SYS* in the file *CONFIG.SYS* becomes redundant.

### (2) Possibility I and Possibility II can be used simultaneously.

Example: the drives C, D, and F exist under MS-DOS, C and E each being directly assigned to an Amiga-DOS partition (C -> DH1, E -> DH2) and D and F being within the Amiga-DOS file (Amiga File), which is located in the Amiga-DOS partition DH0.





### **(3) Accelerating data access with Possibility II.**

In order to accelerate the access to data with the use of Possibility II, the Amiga-DOS program *addbuffers* can be applied. If the particular file (the one containing the MS-DOS drives) has been started e.g. in Amiga-DOS partition DH1, the program *ADDBUFFERS* can be used as follows:

```
ADDBUFFERS DH1: 300
```

This line can also be inserted in the startup sequence of the Amiga boot process and then does not need to be inserted "by hand" after each switching off the Amiga. (Important: with an assignment of additional buffers it must be considered that 300 additional buffers require 150KB of RAM.)

## **6.2 Using the IDE or PC/AT Hard Disk for Golden Gate**

Golden Gate can directly control an IDE hard disk drive.

**Alternatively,** also hard disk drives which are connected with a PC/AT controller (e.g. WD1003 or IDE interface card) plugged into one of the Amiga's PC/AT (ISA) slot can be controlled.

After the desired hard disk drives have been selected in the *setup-program*, the drives have to be low-level formatted. The program *HDFORMAT* enclosed in the delivery of Golden Gate (it is on the disk *Goldmine II*) can be used for this purpose.

(Note: We have also tested *DISK MANAGER* by ONTRACK Computer Systems Inc., which can also be used for this formatting).

After the low-level formatting the MS-DOS programs *FDISK* and *FORMAT* have to be carried out.

## 7. The Golden Gate Emulation Software

---

The emulation software consists of the following programs which are in the corresponding drawers:

***In the drawer GOLDENGATE:***

GG	Loader program
DIGGER	Actual emulation program
GOLDENGATE.CFG	Configuration-file (can be changed with the Golden Gate <i>setup-program</i> )
GOLDENNUGGET	Overlay
GOLDENTOAST	Overlay

***In the LIBS drawer of the Amiga boot-drive:***

GLIB.LIBRARY

***In the DEVS drawer of the Amiga boot-drive:***

GOLDENPYTHON

If the Golden Gate disk *Goldmine I* has been copied with HDINSTALL onto the Amiga hard disk, all files are automatically in the correct drawers.

Golden Gate can be booted either from the workbench or from CLI. For a boot from the workbench simply click twice onto the Golden Gate icon in the GOLDENGATE drawer.

For a boot from CLI you have to switch into the GOLDENGATE drawer and simply enter GG<ENTER>.

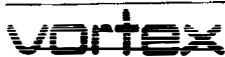
The Golden Gate boot message is shown in the following illustration 7.a.

GoldenGate 80386-Emulator for Amiga - (C) 1992 vortex Computersysteme GmbH				
CPU-80386SX : 25MHz/0WS	COM1 : MS Mouse	BIOS Version : 0.17	(C) Copyright 1990-92 by vortex Computersysteme GmbH	
NPU-80387SX : -	COM2 : -	GLIB Version : 2.03		
Local - RAM : 4096KB	LPT1 : Centronics	Emulator : Golden Gate		
Amiga - RAM : -	LPT2 : -			
BASE MEMORY : 640KB	VIDEO : VGAmmono			
EXT. MEMORY : 3072KB	FDC : installed			
EXP. MEMORY : -	IDE : installed			

Insert Boot disk in drive A and press any key (S = Setup)

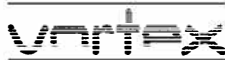
A>

Illustration 7 a



Meaning of the individual entries:

CPU-80386SX or CPU-80486SLC:	<b>25MHz</b> with 0 wait states (only with 60ns SIMMs).
NPU-80387SX:	<b>Installed</b> for an existing 80C387SX 25MHz coprocessor.
Local-RAM:	e.g. 2560KB. This is the size of the RAM existing on Golden Gate (512KB onboard & 2 pieces 1MB SIMMs).
Amiga-RAM:	Size of the RAM provided by the Amiga for Golden Gate.
BASE MEMORY:	<b>640KB.</b>
EXT. MEMORY:	Available amount of Extended Memory. Size according to the existing memory of the Amiga and the settings in <i>setup-program</i> .
EXP. MEMORY:	Available amount of Expanded Memory. Size according to the existing memory of the Amiga and the settings in <i>setup-program</i> .
COM1:	<b>MS Mouse</b> With a standard mouse driver the Amiga mouse is emulated as a serial Microsoft mouse
COM2:	<b>RS232</b> Standard RS Interface.
LPT1:	<b>Centronics.</b> The standard Amiga Centronics interface is available as LPT1 under MS-DOS. <b>ISA-bus.</b> The MS-DOS parallel interface LPT1 is realized by a PC/AT (ISA) card, which is plugged into an Amiga PC/AT slot.
LPT2:	See LPT1
VIDEO:	<b>VGAmono.</b> Pre-selected video emulation (here VGA monochrome graphics) <b>ISA-bus.</b> Video display by a PC/AT (ISA) EGA/VGA graphics card in a PC/AT slot.



FDC:	<b>Installed.</b> Golden Gate has the 82077AA floppy disk controller.
IDE:	<b>Installed.</b> An IDE hard disk drive has been connected with Golden Gate.
BIOS Version:	Installed PC/AT BIOS version.
GLIB Version:	Installed GLIB version (Golden Gate LIBrary).
Emulator:	<b>Golden Gate.</b>

GG is loaded under Amiga-DOS. The different ways to start the Golden Gate loader GG from CLI are listed below. All details in "[ ]" are optional, i.e. they can be given but do not have to be given.

**GG [?] [HELP] [INFO] [CHIP] [MT:nn] [PRI:nn] [DBA] [MIN] [DDC] [NS]**

HELP,?	This list.
INFO	Display Golden Gate system information.
CHIP	Only Chip-RAM is used for the PC/AT BIOS.
MT:nn	Perform the memory test nn - times before loading the emulator.
PRI:nn	Change Golden Gate task priority (nn: -127...128, Default=-1).
DBA	BASE MEMORY is 512KB and not 640KB.
DDC	Disk change recognition enabled, i.e. a MS-DOS disk change will at once be recognized by Amiga-DOS as well.
NS	The <i>setup-program</i> is not loaded along with it (this becomes relevant, if there are only 512KB of local RAM) and no Amiga RAM is assigned to Golden Gate.

MIN                    Load the emulator in minimum configuration:  
                         512KB BASE MEMORY  
                         No EXTENDED/EXPANDED MEMORY  
                         Video output via Amiga.

### **Loading the emulator from CLI/the Shell:**

Golden Gate is loaded from the Shell by entering

GG<ENTER>   or  
DIGGER<ENTER>

In addition the options described on page 89 can be entered, too.

With that entry GG generates a new Shell in which Golden Gate will afterwards run, whereas DIGGER uses the current Shell (and does not return !).

If you only want to **change** the settings of the emulator (without loading the emulator), you can do so by entering

GG SET<ENTER>   or  
DIGGER SET<ENTER>

### **Loading the emulator from the Workbench:**

Golden Gate is loaded by double clicking onto the icon *digger*.

If you only want to **change** the configuration of Golden Gate, load the setup-program by double-clicking on the *setup* icon.

If any options shall be used in loading the emulator as described on page 91, please adhere to the following instructions. Options containing a further parameter (e.g. PRL5 or CFG\_SERVER), however, can not be used.

- With Kickstart 1.3

Click once onto *digger* icon and then select the Workbench function *Info* and there *Tool Types*. With *add* you can add options. Each option must begin with a blank, followed by the option, a "-" and "ON" (e.g. DBA=ON).

- With Kickstart 2.0

click once onto *digger* icon and then select the Workbench function *Information* and there *Tool Type*. With *add* you can add options. Each option must begin with a blank. (e.g. DBA).

## 7.1 Using Parts of the Golden Gate RAM as an Amiga RAM Expansion - the Golden Gate Program *moremem*

As has been mentioned before, parts of the Golden Gate RAM can be used as an autoconfiguring Amiga RAM expansion. 2MB or 4MB are at your choice.

According to paragraph 3.6 *Upgrading the Golden Gate emulator with RAM jumper 2* (J2) for 2MB or jumpers 2 & 3 (J2 & J3) for 4MB, must be plugged on the Golden Gate PCB.

*moremem* is loaded under Amiga-DOS. The different possibilities to start the Golden Gate memory manager *moremem* are listed below. All details in "[ ]" are optional, i.e. can be given but don't have to be given.

### **MOREMEM [?] [INFO] [PRI:nn] [S:nn] [T:nn]**

HELP,?	This list.
INFO	Memory expansion information.
PRI:nn	Select memory-priority (nn: -127...128, default=0).
SIZE:nn	Change size of the additional memory (nn: size in KB, default=maximum possible memory).
TEST:nn	RAM test (nn: number of test runs).

Note:

1. The program *moremem* must (if desired) be loaded before a server start (see chapter 7.8).
2. The program *moremem* must (if desired) be loaded before starting the emulator. If the program *moremem* has been loaded no Amiga RAM can be used for emulation (since *moremem* would provide the Amiga with parts of the Golden Gate RAM which then would be used for the emulation.)

## 7.2 Supported Floppy Disk Drives and their Formats

From MS-DOS 3.2 upwards Golden Gate emulates the following disk formats with the Amiga floppy disk drives:

Capacity formatted	Number of Sides	Number of Tracks per Side	Format
720KB	2	80	3,5"/5,25"
360KB	2	40	3,5"/5,25"
360KB	1	80	3,5"/5,25"

As soon as Golden Gate has been upgraded with the 82077AA floppy disk controller the following floppy disk drives can be accessed with the disk formats given below:

Capacity formatted	Recording Method	Number of Tracks per Side	Format
720KB	DD	80/2	3,5"
1,44MB	HD	80/2	3,5"
2,88MB	ED	80/2	3,5"
360KB	DD	40/2	5,25"
720KB	DD	80/2	5,25"
1,2MB	HD	80/2	5,25"

(DD: Double Density recording, HD: High Density recording, ED: Extended Density recording)





With the Golden Gate *setup-program* the assignment of the Amiga floppy disk drives (DF0: ... DF3:) or the floppy disk drives connected with Golden Gate (if the 82077AA floppy disk controller has been installed) to the MS-DOS floppy disk drives A and B can be installed.

If Golden Gate is loaded without first changing the standard settings with the *setup-program*, the standard MS-DOS floppy disk format 3,5"/720KB will be emulated on the Amiga floppy disk drive DF0:.

A formatting of 2,88MB floppy disk drives with MS-DOS 5.0 will already be supported by the MS-DOS program *format*. In order to be able to use 2,88MB disks also with older versions of MS-DOS (4.01 or 3.3), the Golden Gate formatting program FMT288 is on the disk *Goldmine II*.

Below the input formats for FMT288 and the MS-DOS 5.0 program FORMAT are listed:

FMT288 A<ENTER>	Formats a 2,88MB 3,5" disk in MS-DOS drive A.
FMT288 B<ENTER>	Formats a 2,88MB 3,5" disk in MS-DOS drive B.

FORMAT A: /u/f:2880<ENTER> Formats a 2,88MB 3,5" disk in MS-DOS drive A.

FORMAT B: /u/f:2880<ENTER> Formats a 2,88MB 3,5" disk in MS-DOS drive B.

Of course, the corresponding floppy disk drive must also support 2,88MB.

(The program FORMAT supports this option only starting with MS-DOS Version 5.)

### 7.3 The Amiga Mouse as a serial Microsoft Mouse

For the installation of the Amiga mouse as a Microsoft compatible mouse under MS-DOS, the Microsoft mouse driver `MOUSE.SYS` or a mouse driver compatible to it is required. For that purpose add the following line to the MS-DOS configuration file `CONFIG.SYS` (e.g. with MS-DOS editor `EDLIN`):

```
DEVICE=MOUSE.SYS
```

Additionally the file `MOUSE.SYS` must be copied from the MS-DOS system disk into the MS-DOS drive C. After booting of MS-DOS the Amiga mouse is available as a Microsoft compatible mouse.

The question why there is no mouse driver necessary to be delivered together with Golden Gate can easily be answered with the following considerations: Many application programs (e.g. `WORD 5.5`) require their own mouse driver. This driver will be delivered together with the corresponding application program. With certain other programs the mouse driver has already been integrated in the program itself. Golden Gate emulates the original Amiga mouse as a serial Microsoft mouse either on `COM1` or `COM2`. Thus, all programs and mouse drivers requiring a serial Microsoft mouse are at once ready to run. In this way a maximum of compatibility and flexibility is guaranteed.

#### **Important note for the use of a PC/AT (ISA) EGA/VGA graphics card and an external monitor:**

To make it possible to use the Amiga mouse most efficiently with the operation of a PC/AT (ISA) EGA/VGA graphics card and an external monitor, a function has been implemented to deactivate the mouse completely for the Amiga, so that its functions only concern those of the emulated serial Microsoft mouse. This *Mouse-Capture* function is enabled or respectively disabled by simultaneously pressing the keys:

*Left Amiga-key + Right Amiga-key + C.*

The respective mouse-capture status is indicated in the Golden Gate window, that is opened shortly before the loading of the emulator. This key combination applies only with an active Golden Gate window. (The contents of the Golden Gate window are not refreshed when the window is moved.)



## 7.4 The Keyboard Emulation

Golden Gate emulates a 84-key IBM-AT keyboard. The numeric keyboard-block of the Amiga keyboard is available with the same assignment as under MS-DOS. The following special key-combinations are available during operation with the Golden Gate emulator. (Note: with older Amiga computers the left Amiga-key does not yet bear the Amiga-logo but still the Commodore-logo):

Note: For a safe and correct operation with the Amiga keyboard under MS-DOS no MS-DOS keyboard drivers should be loaded.

Special Keys	Function
Left Amiga-key and "0" in the numeric block	Invert the screen (refers to the program INVERS.EXE) Only available in 2 colour mode ! <sup>(2)</sup>
Left Amiga-key and "1" in the numeric block	Scroll the VGA graphics screen upwards <sup>(1)</sup> or Scroll the Hercules graphics screen to the left. <sup>(2)</sup>
Left Amiga-key and "2" in the numeric block	Disk change recognition by Amiga-DOS under MS-DOS enabled or disabled
Left Amiga-key and "3" in the numeric block	Scroll the VGA graphics screen downwards <sup>(1)</sup> or Scroll the Hercules graphics screen to the right <sup>(2)</sup>
Left Amiga-key and Right Amiga-key and "S"	Golden Gate hardware reset
Left Amiga-key and Right Amiga-key and "O"	Terminate Golden Gate
Left Amiga-key and Right Amiga-key and "C"	Enable or disable Mouse-Capture <sup>(3)</sup>
CTRL-key and ALT-key and DEL-key	MS-DOS reset
Left Amiga-key and "Q"	Control Monitor Master

Special Keys	Function
Left Amiga-key and "N" or Left Amiga-key and "M"	Switch between Amiga-DOS and Golden Gate Screen
Left Amiga-key and "+" or Left Amiga-key and "-"	Scroll through all available screens forward or backward

- (1) only with NTSC mode.
- (2) function disabled with an existing PC/AT EGA/VGA graphics card.
- (3) function enabled only with an existing PC/AT EGA/VGA graphics card.  
In order to have this key-combination accepted the Golden Gate window must be active.

## 7.5 The Golden Gate Video Emulations

Golden Gate provides the following video emulations:

Emulation	Type	Colours	Format
CGA-Mode 0	TEXT	16 <sup>(1)</sup>	40*25 characters
CGA-Mode 1	TEXT	16 <sup>(1)</sup>	40*25 characters
CGA-Mode 2	TEXT	16 <sup>(1)</sup>	80*25 characters
CGA-Mode 3	TEXT	16 <sup>(1)</sup>	80*25 characters
CGA-Mode 4	GRAPHICS	4	320*200 pixel
CGA-Mode 5	GRAPHICS	4	320*200 pixel
CGA-Mode 6	GRAPHICS	2	640*200 pixel
MDA	TEXT	2	80*25 characters
Hercules	GRAPHICS	2	720*348 <sup>(2)</sup> pixel
Toshiba 3100	GRAPHICS	2	640*400 pixel
Olivetti	GRAPHICS	2	640*400 pixel
EGA monochrome	GRAPHICS	2	640*350 pixel
VGA monochrome	GRAPHICS	2	640*480 pixel <sup>(3)</sup>

Notes:

<sup>(1)</sup> 16 different colours in CGA textmode can be assigned to 4, 8, or 16 MS-DOS colours. The choice of the number of colours (or the so-called Bit-Planes), is also relevant for the performance Golden Gate can achieve in the CGA textmode.

<sup>(2)</sup> With the Hercules mode the physical screen can be scrolled to the left or to the right with the keys *Left Amiga-key* + 1 in the numeric block or *Left Amiga-key* + 3 in the numeric block.

<sup>(3)</sup> Only important for operation with NTSC.

With the VGA monochrome mode the **physical** screen can be scrolled upwards or downwards with the keys *Left Amiga-key* + 1 in the numeric block or *Left Amiga-key* + 3 in the numeric block.

## **7.5.1 Switching the Video Emulation under MS-DOS, the programs CGA, MDA, EGA, VGA, V400, and INVERS.**

These programs are ineffective when a real EGA/VGA graphics card is used for the MS-DOS video output.

With the help of the Golden Gate *setup-program* the desired video emulation can be set. Independent of this setting you can switch between the individual video emulations under MS-DOS with the vortex programs CGA.EXE (for CGA emulations with 4, 8, and 16 colours), MDA.EXE (for Hercules emulation), EGA.EXE (for EGA monochrome emulation), VGA.EXE (for VGA monochrome emulation) and V400.EXE (for T3100/Olivetti emulation). With the program INVERS.EXE the screen can be switched from normal to inverse mode and vice versa. These programs are on the disk Golden Gate *Goldmine II*. Even after a simultaneous pressing of the keys "Control", "Alternate" and "Delete", the settings done with these programs are maintained.

MDA.EXE	selects the Hercules emulation
CGA.EXE	selects the CGA emulation
V400.EXE	selects the Olivetti and the Toshiba 3100 emulation
EGA.EXE	selects the EGA monochrome graphics emulation
VGA.EXE	selects the VGA monochrome graphics emulation

Note:

Together with loading CGA.EXE, V400.EXE, EGA.EXE, and VGA.EXE the number of colours for the 80\*25 textmode can be selected.

e.g. CGA 4<ENTER>

If nothing is selected the number of colours given at the last time remains valid.

<i>Command</i>	<i>Function</i>
CGA<ENTER>	selects the CGA emulation with the previously installed number of colours or the number of colours set with the <i>setup-Program</i>
CGA 4<ENTER>	selects the CGA emulation with 4 colours
CGA 8<ENTER>	selects the CGA emulation with 8 colours
CGA 16<ENTER>	selects the CGA emulation with 16 colours

The same applies with V400, EGA and VGA monochrome

Switching the Hercules emulation:

<i>Command</i>	<i>Function</i>
MDA<ENTER>	selects the Hercules emulation with the font previously installed.
MDA 8<ENTER>	selects the Hercules emulation with an 8*8 font (very fast and flicker free).
MDA 16<ENTER>	selects the Hercules emulation with an 8*16 font.

**Important: the selected emulation/ number of colours/ font is maintained even after a MS-DOS Reset (e.g. CTRL-ALT-DEL).**

### **7.5.2 The Programs VHIGH, VLOW, SSCR, and HSCR**

These programs are ineffective when a real EGA/VGA graphics card is used for the MS-DOS video output.

Some programs synchronize their video memory accesses to the vertical flyback of the video controller (VBL) in order to guarantee a flicker free picture. In doing so, they expect a certain length of the VBL pulse. Since the video part of Golden Gate is emulated on a software base, it is not possible to generate a reproduction of the VBL true to nature. The standard setting is VLOW, i.e. a short VBL pulse. If a program should simply "hang" after loading this effect could have been produced by its waiting in an endless loop for a long VBL pulse. In this case reset Golden Gate and then load VHIGH before this particular program is started anew. (A program where this might happen e.g. is the editor from the Norton utilities NE.COM). VLOW and VHIGH are not resetproof. After a reset the video part is always in a state corresponding to VLOW.

SSCR.EXE enables the softscroll function in the textmode (Default)

HSCR.EXE enables the hardscroll function in the textmode

With a softscroll the screen is really scrolled by the blitter, whereas the scroll is done indirectly over the video update with the hardscroll.



## 7.6 The Operation of a PC/AT (ISA) EGA/VGA graphics card

Golden Gate supports EGA and VGA graphics cards of the most different manufacturers. For an operation of these cards a suitable monitor (e.g. Multisync or VGA monitor) is required. In addition the input field *video setup* in the Golden Gate *setup-program* must be set on *ISA-bus*.

If there is enough RAM on Golden Gate, additionally the video BIOS (in the EPROM on the EGA/VGA graphics card) can also be shadowed (this is often the address space: C000:0000 - C000:7FFF). By doing so, video speed can again be accelerated considerably.

To make it possible to use the Amiga mouse most efficiently with the operation of a PC/AT (ISA) EGA/VGA graphics card and an external monitor, a function has been implemented to deactivate the mouse completely for the Amiga, so that its functions only concern those of the emulated serial Microsoft mouse. This *Mouse-Capture* function is enabled or respectively disabled by simultaneously pressing the keys:

*Left Amiga-key + Right Amiga-key + C.*

The respective mouse-capture status is indicated in the Golden Gate window, that is opened shortly before the loading of the emulator. This key combination applies only with an active Golden Gate window. (The contents of the Golden Gate window are not refreshed when the window is moved.)

Important Note: we observed that some EGA/VGA graphics cards are too slow for the high bus speed of the Golden Gate emulator (symptom: with a scrolling uncoordinated characters are displayed). In this case the *bus speed* must be set on *Low* in the Golden Gate *setup-program*.

## 7.7 The Real Time Clock

Golden Gate has its own real time clock. With loading the emulator the PC/AT clock is synchronized to the settings of the Amiga real time clock.

## 7.8 Golden Gate Server Operation

Besides allowing for the use of parts (up to 4MB) of the Golden Gate PC/AT RAM expansion as an autoconfiguring Amiga RAM expansion, Golden Gate also provides you with a simple possibility for the use of PC/AT floppy disk and hard disk drives under AmigaDOS.

The Amiga RAM expansion is available during emulator operation, whereas it is only possible to use the PC/AT floppy disk / hard disk drives under AmigaDOS, if the emulator is not in operation.

The integration of the PC/AT floppy disk / hard disk drives into the AmigaDOS operating system is done by starting a so-called server. This server is part of Golden Gate's emulation software and provides elementary, multitasking-capable functions for the use of PC/AT floppy disk / hard disk drives under AmigaDOS.

Glue-software between Golden Gate and AmigaDOS is the GG.DEVICE.

If the server has once been started, it can only be removed by a reset of the Amiga computer (this is why we do not recommend to integrate the server start in the startup-sequence).

Since the server has first to be started in order to be able to use PC/AT floppy disk / hard disk drives under AmigaDOS, it is not possible to boot the Amiga computer from these drives.

Furthermore, you have to take care that *moremem* (if desired) is started before the server.

We have found that there is a version of the Amiga FastFileSystem (FFS) which has a bug. With this FFS the Golden Gate Server can not be started. In order to remedy this we put a functioning FFS into the **L** directory of the *Goldmine I* disk, which can be copied into the **L** directory of the Amiga boot-drive.

The procedure for using the server is as follows:

(Subsequently explicit commands are always given for the Cli/the Shell and directly behind it in brackets the name of the Workbench icons are given.)

1. Assigning the PC/AT floppy disk and / or hard disk drives for use under AmigaDOS. The assignment of the PC/AT drives to AmigaDOS drives is done according to the following scheme:

PC/AT floppy disk drive A	->	AmigaDOS drive G0:
PC/AT floppy disk drive B	->	AmigaDOS drive G1:
first PC/AT hard disk drive	->	AmigaDOS drive G2:

## PC/AT floppy disk drives:

Although Golden Gate supports several formats on one and the same floppy disk drive (e.g. 360KB, 720KB, 1.2MB on a 5.25" HD floppy disk drive), only the format set with the configuration (see below) can be used under AmigaDOS.

Example: you have selected the setting *FD0-1.2MB GoldenGate* in the *Floppy Drive Setup* for menu entry Floppy A. I.e. there is a new drive G0: available under AmigaDOS with a formatted capacity of memory of 1.2 MB.

Disks are formatted in the drives G0. and G1: with the following command:

```
FORMAT DRIVE G0: NAME name FFS<ENTER>
```

Since PC/AT floppy disk controllers do not provide a Media-Change mechanism similar to that of the Amiga floppy disk controller, a disk change in G0: (G1:) must explicitly be announced to the AmigaDOS. This is done both under the Cli/the Shell and under the Workbench by simultaneously pressing the keys:

*Left Alt-key + Left Shift-key + Ctrl-key*

Disks formatted in the AmigaDOS format (880KB) can not be operated in G0: or G1:. This is caused by the different physical recording-formats of Amiga and PC/AT floppy disk controllers.

## PC/AT hard disk drives:

There is a simple way to use a part of a PC/AT hard disk drive under AmigaDOS. This partitioning is done indirectly with the MS-DOS program FDISK. FDISK asks you, whether you want to use the complete hard disk under MS-DOS. Answer this question with N(o). FDISK now asks how many cylinders/MB (according to the MS-DOS version) shall be used for the MS-DOS drive.

The rest of the PC/AT hard disk drive (i.e. complete capacity minus MS-DOS capacity) will then not be used by MS-DOS and is available as AmigaDOS drive G2.

Example: a 42 MB IDE hard disk is connected to Golden Gate's IDE interface. With FDISK you have installed a MS-DOS drive C with 20 MB. I.e. 22 MB are left for G2:.

G2: is formatted with the AmigaDOS command:

```
FORMAT DRIVE G2: NAME name QUICK FFS<ENTER>
```

A low-level formatting under AmigaDOS is not possible, this must always be done under MS-DOS with the help of the program HDFORMAT (on the disk *Goldmine II* in the *TOOLS* directory).

2. Before you can use PC/AT drives under AmigaDOS, you have to tell the server which drives this shall be. In order to do so start the command

GG SET CFG=SERVER<ENTER> (SETUPSERVER)

The Golden Gate setup menu appears on the screen.  
Only three fields in this menu are important for the server operation.

- |                                     |   |
|-------------------------------------|---|
| 1. field: <i>Floppy Drive Setup</i> | Here select the type corresponding to the connected floppy disk drive(s) in the menu Floppy A (B). A selection of the Amiga drives DF0: to DF3: is not allowed. |
| 2. field: <i>Hard Disk Setup</i>    | Here select in Drive C the type corresponding to the connected hard disk drive.   |
| 3. field: <i>Shadow RAM Setup</i>   | If Golden Gate has at least 1MB of own RAM, the shadowing of the system BIOS should be enabled.   |

If these three fields should contain the same settings as with the emulation operation, you can simply adopt these settings by entering the following AmigaDOS command:

COPY GOLDENGATE.CFG SERVER.CFG<ENTER>

3. Starting the server.  
The server is started with the command

GG SVC PRI:5 CFG=SERVER<ENTER> (SERVER)

Since the server first checks which PC/AT drives are available, the integration of the drives into AmigaDOS will last up to several seconds according to the configuration.



## 7.9 Golden Gate Error Messages

Error messages appear either as an Alert or as a text message in the active window. Most error messages are self-explanatory. Beyond that we would like to further explain the following error messages.

*GoldenGate Loader reports Error: 50*

*Diagnosis: cannot open glib.library*

Reason: glib.library is not in the logical drive LIBS:. Probably you have selected the wrong method for the hard disk installation (see also Addendum 5 mentioned above).

*GoldenGate Loader reports Error: 51*

*Diagnosis: GLIB-Init Error 14*

Reason: goldenpylon is not in the logical drive DEVS:. Probably you have selected the wrong method for the hard disk installation (see also Addendum 5 mentioned above).

*GoldenGate Loader reports Error: 51*

*Diagnosis: GLIB-Init Error 12*

Reason: autoconfiguration error.

Switch off the Amiga and then switch it on again.

*GoldenGate Loader reports Error: 91*

*Diagnosis: cannot allocate an INTEL*

Reason: Golden Gate or the server are already in operation.

*GoldenGate Loader reports Error: 96*

*Diagnosis: byte-cycle failure (try option chip)*

Reason: The memory of an accelerator card does not support a bus-master DMA word-write-access. Remedy: Start Golden Gate with the GG CHIP<ENTER>.

## 8. Miscellaneous

### 8.1 Memory Expansions In the Amiga

If memory expansions shall be operated in the Amiga Zorro bus, it has to be ascertained that this additional memory really does work. With good products normally an appropriate memory test software is included.

Whoever relies on the figures given by the workbench or the *avail* command for a control of proper functioning might be left standing in the rain. The results given there provide absolutely no clues for the real functioning of the additional memory. **Only when it has been ascertained that the additional memory is really able to work faultlessly, it makes sense to operate Golden Gate with this memory.**

In addition to the 640KB of MS-DOS base memory Golden Gate can control up to 15MB of extended and/or expanded memory.

For this purpose either parts of the Amiga RAM or the RAM of the Golden Gate emulator can be used (see the Golden Gate *setup-program*).

### 8.2 The Operation of Microsoft Windows 3

Windows 3 (3.0 and 3.1) is the new graphics user interface for PC/AT computer systems. As opposed to older Windows versions, Windows 3 is able to use the extended memory as a real program memory. For that the 80386/80486 microprocessor is operated in the so-called Enhanced Mode.

At the moment Golden Gate is the only MS-DOS emulator completely supporting Windows 3.1 without any additional graphics hardware (e.g. VGA-cards and monitor). Since Windows 3.1 also requires at least a 80286 processor, Windows 3.1 will not run with emulators based on a 8088 or 8086 processor.

In order to be able to operate Windows 3 together with Golden Gate, the following pre-conditions must be fulfilled or, respectively, the following precautions be taken:

1. Golden Gate should dispose of at least 640KB of base memory and 2MB of extended memory. In order to achieve an optimum speed the extended memory should be located on Golden Gate itself.



**2. A corresponding size of extended memory must be set according to the users' wishes with the Golden Gate *setup-program*.**

**3. Automatically the Windows setup program adds the two drivers HIMEM.SYS and SMARTDRV.SYS to the MS-DOS configuration file CONFIG.SYS automatically.**

**4. As a video adapter e.g. "VGA with monochrome display" (640\*480 pixel) can be selected with the setup program when installing Windows 3. An "AT&T PVC display" (640\*400) can be selected at Amigas operating with NTSC mode.**

**Note:** When a certain EGA/VGA graphics card in the PC/AT slots of the Amiga is used the corresponding graphics card has to be selected in the Windows setup program (e.g. "Video Seven Super VGA").

**5. Before each loading of Windows 3 it has to be ascertained that VGA or V400 (these small programs switch to VGA monochrome or Olivetti video emulation, they are on the disk *Goldmine II*) has been loaded, or the VGA monochrome emulation or Olivetti emulation has been set as a default-start video emulation.**

**Note:** When a certain EGA/VGA graphics card in the PC/AT slots of the Amiga is used this setting becomes redundant.

**6. WIN<ENTER> starts Windows 3 in the enhanced mode. By clicking the help menu in the program manager and a further clicking of the menu item "info about program manager" it can be indicated that Windows runs in the Enhanced Mode and how much memory is available for programs.**

### **Particularities with Windows 3.1**

- Install Windows on your hard disk as described in the Windows manual by loading the program SETUP on the first Windows installation disk. SETUP puts two methods at your choice: "Express-Setup" and "User defined setup".

On any account select the "User defined setup", for this method provides you with a survey of the system configuration found by SETUP. Pay attention that SETUP displays the message "VGA with monochrome-display" in the field "Display". If this should not be the case, you have probably set the wrong video emulation. Now complete the installation as suggested by SETUP. After a successful completion of the installation you should select the option "Reboot System". The system will now reset the emulator.

- Before you can load Windows in the Extended 386 Mode, a small change must be made to the file SYSTEM.INI (you will find it in the directory in which you have installed Windows; default: Windows). Please use a MS-DOS editor for that. Look for the paragraph [boot] and exchange the line

*386grabber=vga.3gr*                    for the line  
*386grabber=vga30.3gr*

Now look for the paragraph [386Enh] and **exchange the line**

*display=\*vddvga*                    for the line  
*display=vddvga30.386*

Save the file and leave the editor. Before you can load Windows 3.1 now, you must copy the **two files** *vga30.3gr* and *vddvga30.386* into the Windows 3.1 directory. The **two files** are in a compressed form on one of the original Windows 3.1 disks (e.g. disk 2 with 3.5"/1.44MB Format). The compressed files are called *vga30.3g\_* and *vddvga30.38\_*.

Copy these two files into the Windows 3.1 directory and expand them with the commands:

EXPAND *vga30.3g\_ vga30.3gr*<ENTER> and  
EXPAND *vddvga30.38\_ vddvga30.386*<ENTER>

And a last note:

If you should frequently want to use pure MS-DOS applications under Windows 3.1., we recommend the installation of Windows 3.1. with the Olivetti AT&T graphics adapter (V400).

Note:

There are application programs which do not run under a Windows 3 operated in the enhanced mode e.g. EXCEL 2.01, WORD5.0. In order to be able to enjoy the additional memory some corresponding updates have to be obtained from Microsoft.



### 8.3 The Installation of a MS-DOS RAM Disk

In order to install a MS-DOS RAM disk with RAMDRIVE.SYS the following line must be inserted in the MS-DOS configuration file (e.g. with the MS-DOS editor EDLIN):

```
DEVICE=RAMDRIVE.SYS xxxx /e
```

In addition the Microsoft RAM disk driver RAMDRIVE.SYS must be copied from the MS-DOS system disk onto the MS-DOS drive C.

For xxxx the size of the RAM disk must be inserted; e.g. 3072 for 3MB (these 3MB must be physically existant, of course, and be reserved as an extended memory).

Note: the RAM disk is not resetproof. By a reset (e.g. CTRL/ALT/DEL keys) and, of course, also by switching off the computer **the contents of the RAM disk will be lost irretrievably !**

### 8.4 Golden Gate and Expanded Memory

Golden Gate supports 386/486 expanded memory managers. Thus, expanded memory is available for corresponding application programs according to various standards. QEMM386.SYS, for example, the expanded memory manager by *Quarterdeck*, offers expanded memory according to the standards EMS 3.2, EMS 4 (LIM 4.0), and EEMS.

If another driver as listed below shall be installed, it has to be made sure that it is suitable exclusively for operation with a 386/486 computer systems.

In the following three paragraphs you will find a description of the installation of popular drivers.

It must be ascertained that *no* expanded memory has been set in the Golden Gate *setup-program*.



#### *Microsoft "EMM386.SYS"*

For an enabling of the EMM386 driver the following line must be inserted into the CONFIG.SYS file:

DEVICE=EMM386.SYS FRAME=xxxx

Note: EMM386.SYS must be in the root directory of the boot drive. A corresponding FRAME address must be selected.

#### *Quarterdeck "QEMM386.SYS"*

For enabling the QEMM386 driver the following line must be inserted into the CONFIG.SYS file:

DEVICE=QEMM386.SYS NT NS RAM

Note: QEMM386.SYS must be in the root directory of the boot drive.

#### *Merrill & Bryan TURBO-EMS "VEM.SYS"*

For enabling the VEM.SYS driver the following line must be inserted into the CONFIG.SYS file:

DEVICE=VEMLOAD VEM.SYS D0 00

Note: VEM.SYS must be in the root directory of the boot drive.



## 8.5 File-Transfer from MS-DOS to Amiga-DOS and vice versa

In order to copy files from an Amiga-DOS partition into a MS-DOS partition and vice versa, the two programs **P2A.EXE** and **A2P.EXE** are on the disk *Goldmine II*:

<b>P2A.EXE</b>	<b>PC TO AMIGA:</b>	copies a file from a MS-DOS partition into an Amiga-DOS partition
<b>A2P.EXE</b>	<b>AMIGA TO PC:</b>	copies a file from an Amiga-DOS partition into a MS-DOS partition.

Both programs are loaded under MS-DOS:

```
C>P2A PCNAME AMIGANAME<ENTER>
```

```
C>A2P AMIGANAME PCNAME<ENTER>
```

PCNAME is the name of the MS-DOS file. AMIGANAME is the name of the Amiga-DOS file.

**PCNAME:** DRIVE:\SUBDIR\...\SUBDIR\FILENAME

**AMIGANAME:** DEVICE:PATH1/.../PATHn/FILENAME

### Example

PCNAME: C:\TEST\BIG.TXT or A:\FUN.ASC

AMIGANAME: D:\H0\ASCII\ES\GOLDENGATE\TRANSF.TXT

With entering the PCNAME, DRIVE and SUBDIRs can be left out if the file to be copied is in the same file/directory as P2A or A2P.

With entering the AMIGANAME always the complete path has to be given.

During the copying process each full stop "." stands for 64KB of data.

Wildcards are not supported.



## **8.6 Using Accelerator Cards**

With using 68020/30/40 accelerator cards it must be ascertained that the data cache of the CPU is switched off.

If the installation of a GVP accelerator card is planned, it must be ascertained that no expansion RAM but extended RAM is selected (refer to GVP's system manual).

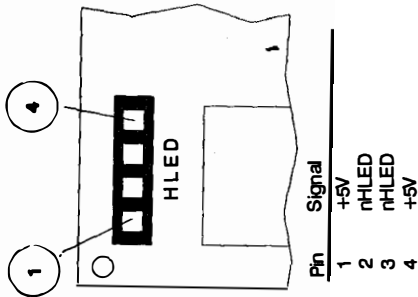
The increased performance of the Amiga becomes visible under Golden Gate as a distinctly faster video output and faster floppy disk accesses to DF0: ... DF3:.

## **8.7 Test Program CHECKIT 2.0**

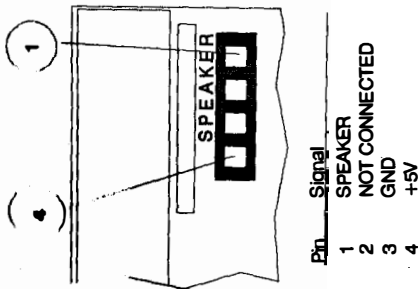
This program gets stuck at test item 7 if SMARTDRIVE is installed. This anomaly is not caused by Golden Gate but by SMARTDRIVE. If this driver is removed from the CONFIG.SYS file, CHECKIT 2.0 goes through test item 7 without any complaints. With the new version CHECKIT 3.0 there are no problems even with SMARTDRIVE being installed.

## 9. Connector Assignment

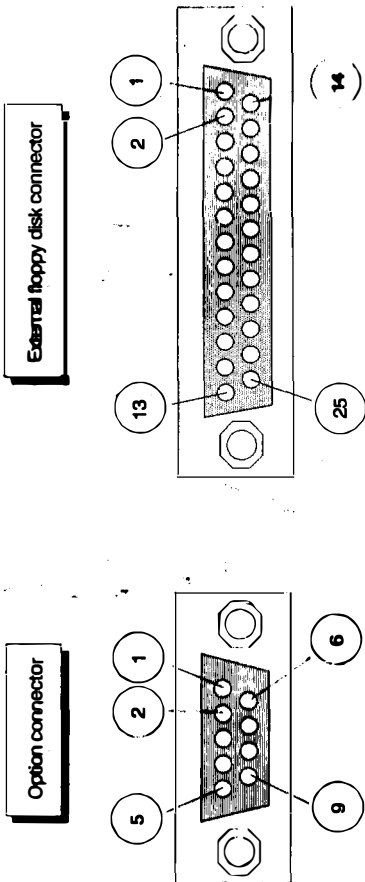
Connector for IDE Hard disk LED



Connector for Speaker



This connector may only be used if J8 (directly beside the electrical speaker on the Golden Gate PCB) is not set.



Pin	Signal	Pin	Signal
1	SENSE_IN	14	DENSITY SELECT
2	SENSE_OUT	15	nHEAD SELECT
3	SPEAKER	16	nDIRECTION
4	RESERVED	17	nSTEP
5	RESERVED	18	GND
6	nRESET	19	GND
7	NOT CONNECTED	20	GND
8	+5V	21	GND
9	GND	22	GND
		23	GND
		24	GND
		25	GND

Pin	Signal	Pin	Signal
1	NOT CONNECTED	14	DENSITY SELECT
2	nINDEX	15	nHEAD SELECT
3	TRACK 00	16	nDIRECTION
4	nWRITE PROTECT	17	nSTEP
5	nREAD	18	GND
6	nDISK CHANGE	19	GND
7	NOT CONNECTED	20	GND
8	+5V	21	GND
9	+12V	22	GND
10	nDISK SELECT 0	23	GND
11	nMOTOR 0	24	GND
12	nWRITE DATA	25	GND
13	nWRITE GATE		

Illustration 9.b

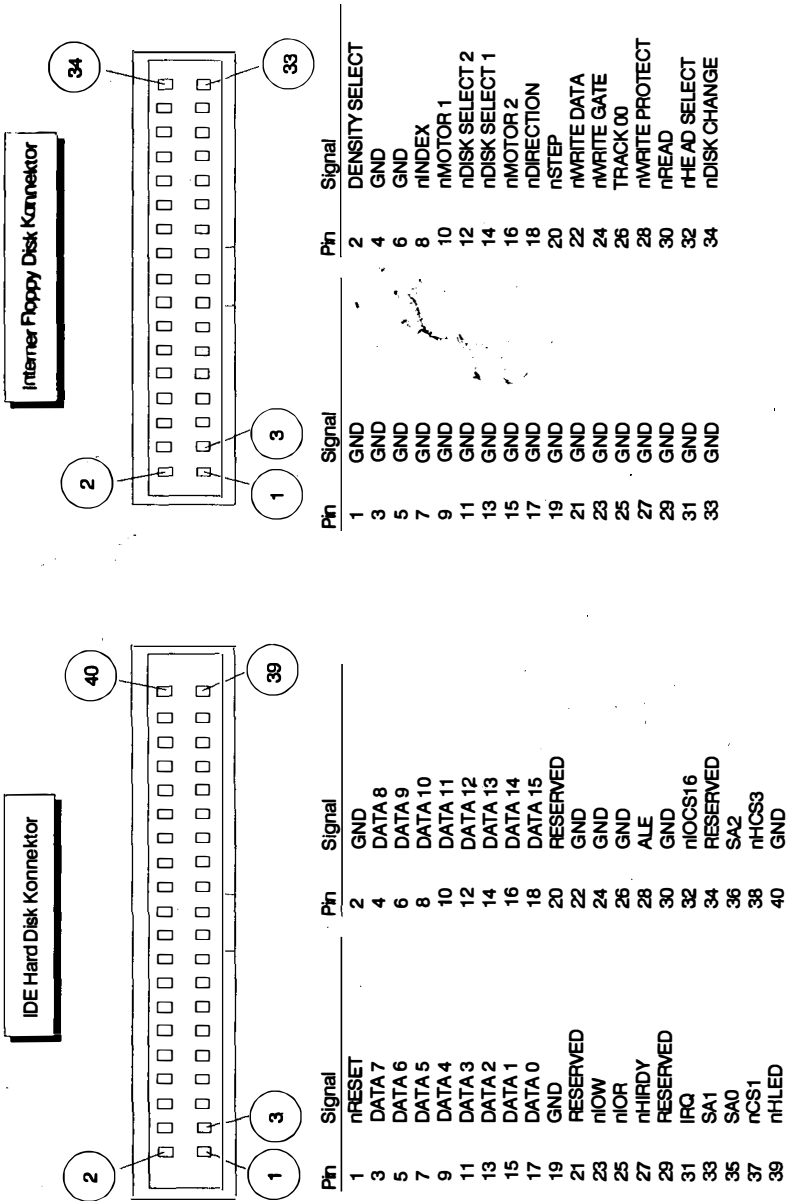


Abbildung 9.c